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Addition to Shops

Lenox Avenue and 148th Street Yard

PUBLIC SERVICE COMMISSION

FOR THE FIRST DISTRICT



**INVITATION TO CONTRACTORS, INFORMATION
FOR CONTRACTORS AND FORMS
OF CONTRACT, BOND AND CON-
TRACTOR'S PROPOSAL**

FOR

Construction of Addition to Shops at

LENOX AVENUE AND 148TH STREET YARD

(UNDER CONTRACT No. 3)

**Form finally adopted by the Commission October 1, 1918, and
filed on Commencement of Advertisement of Invitation to
Contractors.**



PUBLIC SERVICE COMMISSION
FOR THE FIRST DISTRICT



INVITATION TO CONTRACTORS, INFORMATION FOR CONTRACTORS AND FORMS OF CONTRACT, BOND AND CONTRACTOR'S PROPOSAL

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INVITATION TO CONTRACTORS

ADDITION TO SHOPS AT LENOX AVENUE AND 148TH STREET YARD

Sealed bids or proposals for the construction of an addition to the existing shops at Lenox Avenue and 148th Street will be received by the Public Service Commission for the First District (hereinafter called the "Commission") at the office of the Commission at No. 49 Lafayette Street, Borough of Manhattan, New York City, until the 22d day of October, 1918, at eleven thirty (11.30) o'clock a. m., at which time and place or at a later date to be fixed by the Commission, the proposals will be publicly opened.

The said addition to be constructed is to be an addition to existing shops, extending over and upon private property, in the Borough of Manhattan, at Lenox Avenue and 148th Street, and is to be built of brick, concrete and steel. The work will also include the care and support and, where necessary, the readjustment of surface, subsurface and overhead structures and equipment of the existing shops and the maintenance of train operation over tracks on the site of the work.

The Contractor must complete the work within six (6) months from the delivery of the contract.

A fuller description of the work and other requirements, provisions and specifications are given in the Information for Contractors and in the forms of contract, bond and Contractor's Proposal, and in the contract drawings, which are to be deemed a part of this Invitation and copies of which may be inspected and purchased at said office of the Commission.

The receipt of bids will be subject to the requirements specified in said Information for Contractors.

New York, October 1, 1918.

PUBLIC SERVICE COMMISSION FOR THE
FIRST DISTRICT,

By CHARLES BULKLEY HUBBELL, *Chairman*

JAMES B. WALKER, *Secretary*

INFORMATION FOR CONTRACTORS

ADDITION TO SHOPS AT LENOX AVENUE AND 148TH STREET YARD

The Public Service Commission for the First District (hereinafter called the "Commission"), acting for and on behalf of The City of New York (hereinafter called the "City"), invites proposals to construct an addition to the existing shops at Lenox Avenue and 148th Street.

The location within the City of the addition to the Lenox Avenue and 148th Street Shops is briefly as follows:

On private property, in the Borough of Manhattan, bounded by Lenox Avenue, Seventh Avenue, 148th Street and 150th Street.

The general plan of construction calls for a shop built of brick, concrete and steel construction.

The work under the contract will include the care and support and, where necessary, the readjustment of the equipment of the present shops and of surface, subsurface and overhead structures, and the maintenance of train operation over the tracks on the site of the work.

Bidders must examine the form of contract, the specifications and the contract drawings, must visit the location of the work and inform themselves of the conditions along the line of the work and make their own estimates of the facilities and difficulties attending the execution of the work.

A fuller description of the work and other requirements, provisions, details and specifications are given in the form of contract and in the contract drawings therein referred to. Copies of the forms of contract, bond and contractor's proposal and of the contract drawings may be inspected and purchased at the office of the Commission.

The forms of contract, bond and contractor's proposal and the contract drawings are to be deemed a part of this Information for Contractors.

Partial payments to the Contractor will be made as the work proceeds as provided in the contract.

The Contractor must complete the work within six (6) months from the delivery of the contract. In Article LV of the form of contract provision is made for extension of time because of possible delays due, among other things, to acts of the United States government.

INFORMATION FOR CONTRACTORS

At the time of the delivery of the contract the Contractor must furnish security to the City by depositing a bond, cash or securities, in the sum of ten thousand dollars (\$10,000). As further security ten per centum (10%) of the amounts certified from time to time to be due to the Contractor will be deducted and retained.

Sealed bids or proposals will be received at the office of the Commission at No. 49 Lafayette Street, Borough of Manhattan, City of New York, until the 22d day of October, 1918, at eleven thirty (11:30) o'clock a. m., at which time and place, or at a later date to be fixed by the Commission, the proposals will be publicly opened.

Proposals must be in the form prescribed by the Commission.

A statement, based upon the estimate of the Chief Engineer of the Commission, of the quantities of the various classes of the work and of the nature and extent as near as practicable of the work is to be found in the schedule in the form of contractor's proposal. The quantities given in such schedule are approximate only, being given as a basis for the uniform comparison of bids, and no claim is to be made against the City on account of any excess or deficiency, absolute or relative, in the same, except as provided in the specifications and form of contract.

Every proposal must when submitted be enclosed in a sealed envelope endorsed "*Proposal for Constructing an Addition to the Shops at Lenox Avenue and 148th Street Yard,*" and must be delivered to the Commission or its Secretary; and in the presence of the person submitting the proposal, it will be deposited in a sealed box in which all proposals will be deposited. No proposal will be received unless accompanied by a separate certified check for five thousand dollars (\$5,000), payable to the order of the Comptroller of the City and drawn upon a national or state bank or trust company satisfactory to the Commission and having its principal office in New York City. Such check must not be enclosed in the envelope containing the proposal.

The Unit Prices must not be improperly balanced, and any bid which the Commission considers detrimental to the City's interests may be rejected.

INFORMATION FOR CONTRACTORS

No proposal, after it shall have been deposited with the Commission, will be allowed to be withdrawn for any reason whatever.

The award of the contract will be made by the Commission as soon as practicable after the opening of the proposals.

Deposits made by bidders whose proposals are not accepted will be returned within three (3) days after the contract is executed and delivered and its provisions in respect of the bond or deposit are complied with, unless all proposals shall be rejected, in which event such deposits will be returned within three (3) days after such rejection. The deposit of the successful bidder will be returned when the contract is executed and delivered and its provisions in respect of the bond or deposit are complied with.

The right to reject any and all bids is reserved.

New York, October 1, 1918.

PUBLIC SERVICE COMMISSION FOR THE FIRST DISTRICT

By CHARLES BULKLEY HUBBELL, *Chairman*

JAMES B. WALKER, *Secretary*

Public Service Commission

For the First District



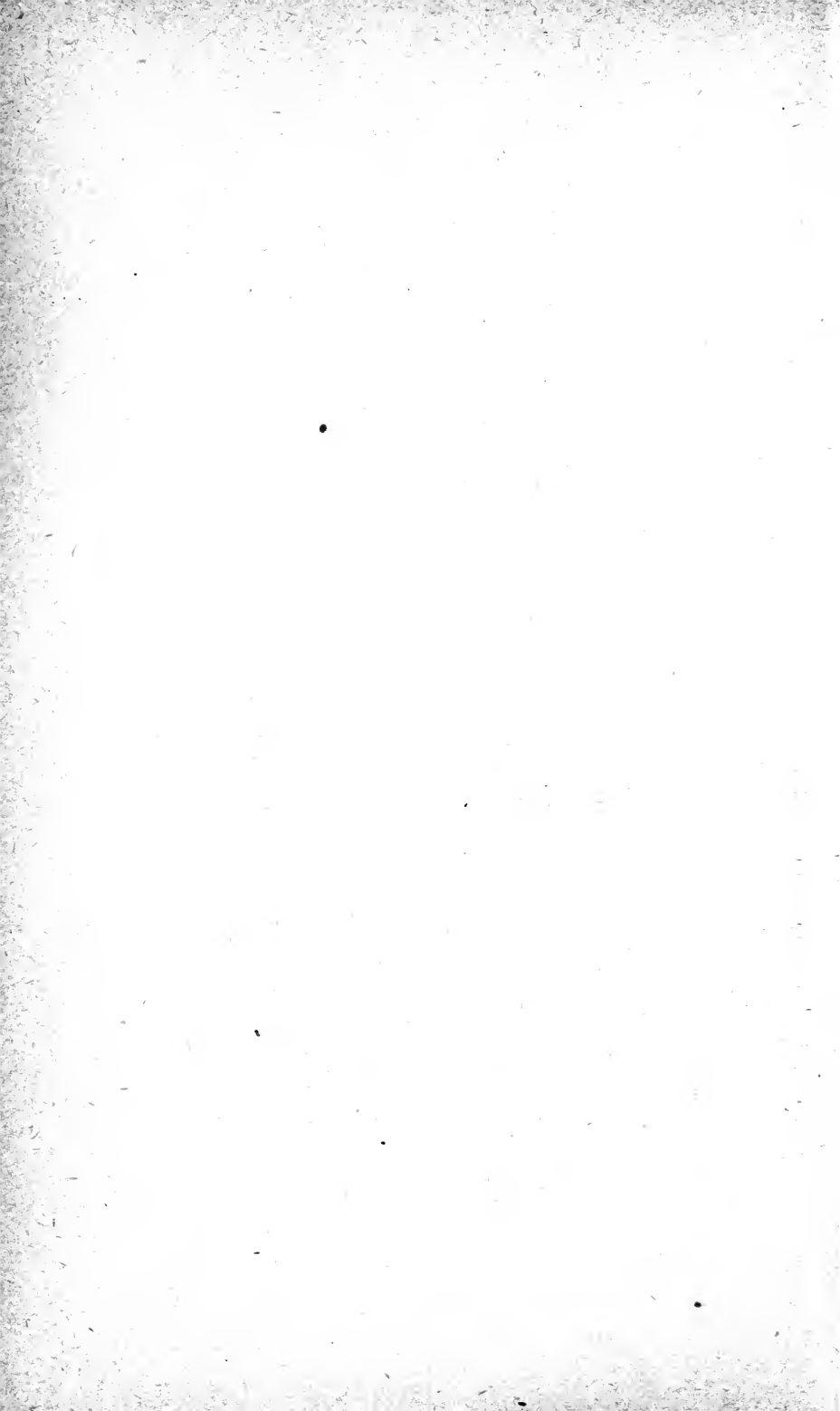
CONTRACT

FOR THE CONSTRUCTION OF ADDITION TO
SHOPS AT THE LENOX AVENUE AND
148TH STREET YARD

(UNDER CONTRACT No. 3)

APPROVED AS TO FORM THIS DAY OF , 1918

ACTING CORPORATION COUNSEL



RAPID TRANSIT RAILROAD

CONTRACT

ADDITION TO SHOPS AT LENOX AVENUE AND 148TH STREET YARD
(UNDER CONTRACT No. 3)

Agreement made this day of , 1918, between
THE CITY OF NEW YORK, hereinafter called the City, acting
by the PUBLIC SERVICE COMMISSION FOR THE FIRST DISTRICT,
hereinafter called the Commission, party of the first part, and

hereinafter called the Contractor, part* of the second
part.

WHEREAS, the Commission in behalf of the City, by due
advertisement, pursuant to law, has invited contractors to submit
to the Commission proposals for making this contract; and

WHEREAS, the Contractor has thereupon duly submitted to
the Commission a proposal, which has been accepted; and

WHEREAS, the Board of Estimate and Apportionment of the
City has consented to this contract;

NOW, THEREFORE, in consideration of the mutual covenants
and agreements hereinafter contained, and under the authority
of chapter 4 of the laws of 1891, entitled, "An Act to provide
for Rapid Transit Railways in Cities of over One Million In-
habitants," and of the various acts amending the same, the parties

* Here insert y or ies, as the case may be.

do hereby, the City for itself and its successors, and the Contractor for*

and assigns

Agree each with the other as follows:

* Here insert, if a corporation, *itself, its successors*; if a single individual, *himself, his executors, administrators*; if several individuals, *themselves jointly and severally and their and each of their executors, administrators*.

CHAPTER I

GENERAL PROVISIONS AND DEFINITIONS

ARTICLE 1. The Contractor agrees to construct the hereinafter described addition to shops for a Rapid Transit Railroad, with its appurtenances. The City agree to pay to the Contractor the sums of money hereinafter mentioned at the times and in the manner and upon the terms and conditions hereinafter set forth.

ARTICLE II. The addition to be constructed under this contract is for the use of certain railroads described in the contract dated March 19, 1913, between the City and the Interborough Rapid Transit Company and known as Contract No. 3.

The location of the addition to shops is on private property, in the Borough of Manhattan, bounded by Lenox Avenue, Seventh Avenue, 148th Street and 150th Street.

The location, dimensions and other characteristics of the addition to shops are given in the specifications forming a part of this contract and in the contract drawings hereinafter mentioned.

ARTICLE III. This contract is made pursuant to the Rapid Transit Act, which is to be deemed a part hereof as if it were incorporated herein.

ARTICLE IV. Titles, headings, subheadings and running headlines are printed hereon merely for convenience and shall not be deemed to be any part of this contract for any purpose whatever.

ARTICLE V. The following words and expressions used in this contract shall, except where by the context it is clear that another meaning is intended, be construed as follows:

(1) The word "City" to mean The City of New York, and any other corporation or division of government to which the ownership, rights, powers and privileges of The City of New York under the Rapid Transit Act, shall hereafter come, belong or appertain.

(2) The word "Commission" to mean the Public Service Commission for the First District, and any other board, body, commission, official or officials, to which or to whom the powers now belonging to the said Commission in respect of the location,

GENERAL PROVISIONS AND DEFINITIONS

construction, equipment, maintenance and operation of Rapid Transit Railroads under the provisions of the Rapid Transit Act shall, by virtue of any act or acts, hereafter pass or be held to appertain.

(3) The words "Interborough Company" to mean Interborough Rapid Transit Company, and its successors and assigns.

(4) The word "Contractor" to mean the part* of the second part of this contract, and†

and assigns and any and every person or corporation who or which shall at any time be liable in the place or for the part of the second part to perform any obligations under this contract assumed by the said part of the second part. For convenience the Contractor is hereinafter referred to as if the Contractor were an individual. The word "he" shall, as the sense may require, include "she," "it" and "they"; the word "him" shall include "her," "it" and "them"; the word "his" shall include "her," "its" and "their."

(5) The word "Comptroller" to mean the Comptroller of the City and the officer or board to whom or to which his powers now existing under the Rapid Transit Act shall come to appertain.

(6) The word "Engineer" to mean the Chief Engineer of the Commission or his duly authorized representative and any successor or successors duly appointed or any deputy or substitute for him who shall be appointed by the Commission or by its authority.

(7) The word "Inspector" to mean any representative of the Engineer designated by him to act as inspector.

(8) The words "Rapid Transit Act" to mean chapter 4 of the laws of 1891 as amended by chapters 102 and 556 of the laws of 1892, chapters 528 and 752 of the laws of 1894, chapter 519 of the laws of 1895, chapter 729 of the laws of 1896, chapter 616 of the laws of 1900, chapter 587 of the laws of 1901, chapters

* Here and in like blanks hereafter insert *y* or *ies*, as the case may be.

† Here insert, as the case may be, either *its successors*, or *his executors*, *administrators*, or *their executors*, *administrators*.

GENERAL PROVISIONS AND DEFINITIONS

533, 542, 544 and 584 of the laws of 1902, chapters 562 and 564 of the laws of 1904, chapters 599 and 631 of the laws of 1905, chapters 472, 606 and 607 of the laws of 1906, chapters 429 and 534 of the laws of 1907, chapter 472 of the laws of 1908, chapter 498 of the laws of 1909, chapters 205, 504, 505 and 506 of the laws of 1910, chapter 888 of the laws of 1911, chapter 226 of the laws of 1912, chapters 100, 510, 524 and 540 of the laws of 1913, chapter 118 of the laws of 1914 and chapters 534, 543, 544, 545, 590 and 604 of the laws of 1915, and chapter 625 of the laws of 1917, or as heretofore otherwise amended.

(9) The word "Shop" to mean the addition to the existing shops of the Manhattan-Bronx Rapid Transit Railroad, which the Contractor agrees by this contract to build or reconstruct, together with all appurtenances thereto which are to be constructed or provided by the Contractor.

(10) The word "Works" to mean all the matters and things herein agreed to be furnished or done by or on the part of the Contractor.

(11) The words "New York" to mean the City of New York according to its boundaries at the date of this contract.

(12) The words "daily newspaper" to mean any paper regularly published in New York on every day or every day except Sundays and holidays.

(13) The word "notice" to mean a written notice.

(14) The words "directed," "required," "permitted," "ordered," "designated," "prescribed" or words of like import used in the specifications or upon the drawings to mean, respectively, the direction, requirement, permission, order, designation or prescription of the Engineer, and similarly the words "approved," "acceptable," "satisfactory" or words of like import to mean, respectively, approved by, or acceptable or satisfactory to, the Engineer.

(15) The word "ton" to mean the short ton of two thousand (2,000) pounds.

GENERAL PROVISIONS AND DEFINITIONS

ARTICLE VI. The Contractor hereby designates Room No.
on the floor of the building No.
in the Borough of

in the City of New York as the place where all notices, directions and other communications to the Contractor may be served, mailed or delivered. The delivering at the aforesaid place or depositing in a post-paid wrapper directed to the aforesaid place, in any post-office box regularly maintained by the Post-office Department, of any notice, direction or other communication to the Contractor, shall be deemed to be sufficient service thereof upon the Contractor as of the date of such delivery or deposit. Such address may be changed at any time by an instrument in writing executed and acknowledged by the Contractor and delivered to the Commission. Nothing herein contained shall be deemed to preclude or render inoperative the service of any notice, direction or other communication upon the Contractor personally, or, if the Contractor be a corporation, upon any officer or director thereof.

ARTICLE VII. If the Contractor shall cause any part of this contract to be performed by a subcontractor, the provisions of this contract shall apply to such subcontractor and his officers, agents and employees in all respects as if he and they were employees of the Contractor; and the Contractor shall not be in any manner thereby discharged from his obligations and liabilities hereunder, but shall be liable hereunder for all acts and negligence of the subcontractor, his officers, agents and employees as if they were employees of the Contractor. The employees of the subcontractor shall be subject to the same provisions hereof as employees of the Contractor; and the work and materials furnished by the subcontractor shall be subject to the provisions hereof, as if furnished directly by the Contractor.

ARTICLE VIII. The Contractor, before making any subcontract of the work, shall state in writing to the Commission the name of the proposed subcontractor, the portion of the work which such subcontractor is to do or the materials which such subcontractor is to furnish, the place of business of such subcontractor and such other information as the Commission may require. The Commission shall have the right to require the Contractor not to award any subcontract to a person, firm or corporation disapproved by the Commission.

CHAPTER II

WORK TO BE DONE, PRICES, ETC.

ARTICLE IX. The Contractor shall furnish all the labor and materials, plant, power, tools, supplies and other means of construction necessary or proper for constructing and completing the Shop and performing all the work which the Contractor agrees by this contract to perform in the manner and within the time hereinafter specified. He shall complete the Shop and do all work and furnish all labor and materials in and about the construction of the Shop to the satisfaction of the Commission and in accordance with this contract and the specifications and drawings herein mentioned at the prices herein agreed upon and fixed therefor; provided, however, that said drawings may from time to time be altered or modified as hereinafter provided.

ARTICLE X. In order to construct the Shop it will be necessary to take up ties and rails and relay rails, shift the location of tracks, protect, support and maintain existing shops, including their equipment, and other surface, subsurface and overhead structures with their appurtenances and connections as the same may be encountered; to build sewers; to make or remake the necessary manholes, catch basins and other sewer connections therewith; to move, alter, readjust or rebuild surface, subsurface and overhead structures with their appurtenances and connections; and to do all such additional and incidental work as may be necessary for the completion of the Shop and the reconstruction and restoration of all surface, subsurface and overhead structures and of all abutting property and buildings which may have been directly or indirectly affected, disturbed or injured by the Contractor in the progress of the work of construction to as useful, safe, durable and good a condition as existed before construction was begun. All such work of every description, including the maintaining, protecting and securing wherever necessary of all buildings and structures of whatsoever nature, and railroads affected by or interfered with during the construction of the Shop, is part of the work which is included in this contract and which the Contractor agrees to perform for the prices herein agreed upon.

WORK TO BE DONE, PRICES, ETC.

ARTICLE XI. The City will pay and the Contractor shall receive, in full compensation for constructing and completing the Shop (including all incidental work), and for the performing and completing the Works and for all expense in connection therewith or incidental thereto, including the furnishing of all labor, materials, plant, power, tools, supplies and other means of construction and including administration, superintendence and insurance, and for all loss or damage arising out of the nature of the work aforesaid or from the action of the elements or from any unforeseen obstruction or difficulty encountered in the prosecution of the work, and for all risks of any description connected with the work, and for all additional expense, loss, risk and damage of any kind due to the operation of the existing shops or tracks in the Lenox Avenue and 148th Street yard during the performance of the Works, and for all expenses incurred by or in consequence of the suspension or discontinuance of the work as herein specified, the prices contained in the Schedule of Unit Prices following.

SCHEDULE OF UNIT PRICES

Item 1. For earth excavation above mean high water (except excavation for sewers, pipes, conduit and ducts), including the disposal of it, etc., the sum of

dollars (\$)) per cubic yard.

Item 1-N. For removing buildings, and clearing the site of the Shop, the lump sum of

dollars (\$)).

Item 2. For earth excavation below mean high water (except excavation for sewers, pipes, conduits and ducts), including the disposal of it, etc., the sum of

dollars (\$)) per cubic yard.

Item 2-A. For earth excavation, both above and below mean high water, for sewers, pipes, conduits and ducts, including the disposal of it, etc., the sum of

dollars (\$)) per cubic yard.

Item 6. For concrete masonry, in place, as follows:

(c) For 1:2½:5 concrete, the sum of

dollars (\$)) per cubic yard.

Item 9. For brick masonry, in place, the sum of

dollars (\$)) per cubic yard.

Item 9-D. For the removal of old masonry of whatever character, including the disposal of it, as specified in Section No. 269, the sum of

dollars (\$)) per cubic yard.

Item 12. For timber piles, in place and prepared, the sum of

dollars (\$)) per lineal foot.

Item 13. For timber foundations, placed and fastened, the sum of
thousand feet, board measure.

dollars (\$))

Item 13-F. For furnishing and placing yellow pine sleepers for pit rails, including the laying of rails, etc., as required by Section No. 86-A, the sum of

dollars (\$))

per lineal foot of rail.

SCHEDULE OF UNIT PRICES

Item 15-C. For waterproofing, coating of pitch without fabric, the sum of
dollars (\$) per square yard.

Item 15-G. For waterproofing, treated felt, laid with coal-tar pitch or asphalt, in place, as follows:

(e) For five-ply, the sum of
dollars (\$) per square yard.

Item 19. For riveted steel, painted and erected, the sum of
dollars (\$) per ton.

Item 19-B. For re-erecting old steel, as specified in Section No. 269, the sum of
dollars (\$) per ton.

Item 19-C. For removing old steel, including the disposal of it, as specified in Section No. 269, the sum of
dollars (\$) per ton.

Item 19-R. For cutting and reframing the ends of existing trusses, as specified in Section No. 269, the sum of
dollars (\$) per end of truss reframed.

Item 20. For steel beams and shapes, with or without connections, or other end details, painted and erected, the sum of
dollars (\$) per ton.

Item 25. For miscellaneous iron castings, such as manhole heads and covers, gratings, etc., in place, the sum of
dollars (\$) per ton.

Item 27-D. For wrought-iron pipe railing, in place, the sum of
dollars (\$) per lineal foot of railing.

Item 42. For cast-iron sewer pipe (straight pipe), in place in the work, the sum of
dollars (\$) per ton.

SCHEDULE OF UNIT PRICES

Item 43. For cast-iron sewer pipe (special castings), in place in the work, the sum of
dollars (\$) per ton.

Item 76-EE. For removing and storing existing rails and ties and shifting existing tracks, as follows:

(a) For removing the existing tracks and storing the rails and ties, the sum of
dollars (\$) per lineal foot of track.

(b) For shifting existing tracks, the sum of
dollars (\$) per lineal foot of track.

Item 762-E. For concrete and cinder work, in place, as follows:

(a) For 6-inch concrete floor, the sum of
dollars (\$) per square foot.

(b) For 1-inch cement floor finish, the sum of
dollars (\$) per square foot.

(c) For cement coping, the sum of
dollars (\$) per lineal foot.

(d) For 4-inch reinforced cinder concrete roof slab, the sum of
dollars (\$) per square foot.

(e) For cinder concrete curbs for skylights, the sum of
dollars (\$) per cubic foot.

(f) For cinder floor in blacksmith shop, the sum of
dollars (\$) per square yard.

(g) For 1:3:6 cinder concrete for inspection pits, the sum of
dollars (\$) per cubic foot.

SCHEDULE OF UNIT PRICES

Item 763-C. For copper flashing, complete in place, the sum of _____ dollars (\$) _____)
per square foot.

Item 765-D. For galvanized iron gutters, in place, the sum of _____ dollars (\$) _____)
per lineal foot.

Item 768. For metal leaders, in place, as follows:

(a) For 3-inch galvanized iron leaders, the sum of _____ dollars (\$) _____)
per lineal foot.

(g) For 5-inch wrought-iron leaders, the sum of _____ dollars (\$) _____)
per lineal foot.

(h) For 6-inch wrought-iron leaders, the sum of _____ dollars (\$) _____)
per lineal foot.

Item 795. For electric conduit, in place, as follows:

(a) For three-fourths ($\frac{3}{4}$) inch, the sum of _____ dollars (\$) _____) per lineal foot.

(b) For one (1) inch, the sum of _____ dollars (\$) _____) per lineal foot.

(d) For two (2) inch, the sum of _____ dollars (\$) _____) per lineal foot.

(f) For three (3) inch, the sum of _____ dollars (\$) _____) per lineal foot.

Item 796. For cast-iron outlet boxes, in place, the sum of _____ dollars (\$) _____) each.

SCHEDULE OF UNIT PRICES

Item 797. For cast-iron pull boxes, in place, as follows:

- (a) For 6-inch by 6-inch by 6-inch boxes, the sum of
dollars (\$) each.
- (j) For 36-inch by 18-inch by 6-inch boxes, the sum of
dollars (\$) each.

Item 799. For steel panelboard boxes, in place, as follows:

- (i) For 29-inch by 6-inch by 45-inch boxes, the sum of
dollars (\$) each.

Item 820-A. For steel sash windows, as follows:

(a) For new fixed steel sash windows, in place, including glazing, painting, etc., the sum of
dollars (\$) per square foot.

(b) For new steel sash ventilating monitor windows, in place, including approved operating devices, glazing, painting, etc., the sum of
dollars (\$) per square foot.

(c) For removing steel sash windows from south wall of existing shops and re-erecting them in south wall of Shop, the lump sum of
dollars (\$)).

Item 820-B. For galvanized iron skylights, in place, including approved operating devices, glazing, painting, etc., as follows:

- (a) For Type "A," the sum of
dollars (\$) per skylight.
- (b) For Type "B," the sum of
dollars (\$) per skylight.
- (c) For Type "C," the sum of
dollars (\$) per skylight.

SCHEDULE OF UNIT PRICES

Item 850-AA. For removing, resetting and installing doors, windows, stairs, rails, etc., as follows:

(a) For removing steel rolling lift doors from east wall of existing shops and re-erecting them in east wall of Shop, including painting, etc., the lump sum of
dollars (\$)).

(b) For removing existing iron stairs and landings and re-erecting them in another location, including painting (but not including new steelwork), etc., as required by Section No. 269, the lump sum of
dollars (\$)).

(c) For removing existing window at location of new bridge landing, and furnishing and installing new door, including all work due to connecting new bridge landing to existing wall, painting and all other incidental work, as required by Section No. 269, the lump sum of
dollars (\$)).

(d) For furnishing and installing 70-pound rail for crane runway, complete in place, the sum of
dollars (\$))
per lineal foot of rail.

QUANTITIES

ARTICLE XII. In case any work or materials shall be required to be done or furnished in or about the Works which it is elsewhere in this contract expressly provided shall be paid for under this Article, or in case any work or materials shall be required to be done or furnished in or about or for the more perfect performance of the Works herein contemplated which are not mentioned, specified or indicated or otherwise provided for in this contract or in the specifications forming a part of this contract or in or upon the contract drawings and which, in the opinion of the Engineer, are not susceptible of classification under the Items of the Schedule of Unit Prices, the Contractor shall if ordered by the Engineer do and perform such work and furnish such materials at and for the actual and necessary net cost in money to the Contractor for labor, for insurance upon such labor under the Workmen's Compensation Law and for materials incorporated in the work and in addition thereto ten per centum (10%) of such net cost, and the Contractor shall have no claim in excess of the above, such payment being in full compensation for the performance of such work and the furnishing of such materials and for all expense in connection therewith or incidental thereto, as aforesaid, including the expense of plant, power, tools, supplies and other means of construction, administration, superintendence and insurance, and for all the loss, damage, risks and expenses mentioned in Article XI. The amount of the insurance upon such labor under the Workmen's Compensation Law shall be determined by the amount of the wages actually and necessarily paid for such labor and the rate of insurance for such labor either in the State Insurance Fund or in any stock corporation or mutual association authorized to transact the business of workmen's compensation insurance in this State, as the case may be. Payment shall not be made under this Article for any such work or materials which are so required to be done or furnished in or about or for the more perfect performance of the Works herein contemplated and which are not mentioned, specified or indicated or otherwise provided for in this contract or in the specifications forming a part of this contract or in or upon the contract drawings so far as such work or materials may be, in the opinion of the Engineer, susceptible of classification under the Items of the Schedule of Unit Prices, which work

QUANTITIES

or materials shall be paid for in part or in whole, as the case may be, at the Unit Prices given in the Items of the Schedule. It is the meaning and intention of this paragraph that where the Contractor enters into a subcontract involving the performance of any labor or the furnishing of any material to be paid for under this paragraph the Contractor shall not be entitled to any greater payment under the provisions of this paragraph than if he had himself furnished such labor or material.

In case any work or materials shall be required to be done or furnished under the provisions of this Article, for cost plus ten per centum (10%), the Contractor shall at the end of each day furnish to the Engineer daily time slips showing the name and number of each workman employed on such work, the number of hours employed thereon, the character of work he is doing and the wages paid or to be paid to him and also a daily memorandum of such materials furnished, showing the amount and character of such materials, from whom purchased and the amount paid or to be paid therefor. If required by the Engineer or the Commission, the Contractor shall produce any books, vouchers, records and memoranda showing the labor and materials actually paid for and the actual prices therefor. Such daily time slips and memoranda shall not, however, be binding upon the City, and if any question or dispute shall arise as to the correct cost of such labor or materials, the determination of the Engineer upon such question or dispute shall be final and conclusive.

Instead of the method above described in this Article for paying for any such work or materials to be paid for under this Article, the Engineer may, but only with the approval of the Commission, agree with the Contractor upon reasonable unit prices or a reasonable lump sum price for such work or materials. Such additional unit prices or such lump sum price shall be embodied in a supplemental schedule. The total amount to be paid for any work and materials under such unit prices or lump sum prices as provided in this paragraph shall not, except with the further consent or approval of the Board of Estimate and Apportionment, exceed two per centum (2%) of the total estimated contract cost on which the contract award was made, but the total amount to be expended under this contract for all purposes, including those contemplated by this Article, shall not

PLANS MAY BE CHANGED

exceed the amount set aside, authorized and appropriated by the Board of Estimate and Apportionment for the execution thereof. In the case of any single order of work or materials, or both, for a particular job or purpose where the lump sum price for such order to be agreed upon under the provisions of this paragraph or the estimated cost of such order according to the unit prices therefor to be agreed upon under the provisions of this paragraph shall exceed two thousand dollars (\$2,000), such agreement shall not be binding upon the City until the Board of Estimate and Apportionment shall approve or consent to such agreement or such lump sum price or such unit prices.

ARTICLE XIII. The quantities of the various classes of work to be done and materials to be furnished under this contract, specified in the Contractor's Proposal, are approximate and only for the purpose of comparing on a uniform basis the bids offered for the Works; and neither the City nor the Commission nor any member of the Commission is to be held responsible that any of the said estimated quantities shall be found even approximately correct in the construction of the Works; and the Contractor shall make no claim for damages or for anticipated profit or for loss of profit because of a difference between the quantities of the various classes of work actually done or materials actually delivered and the estimated quantities or items stated in the Contractor's Proposal or because of the entire omission of any of the quantities or items stated in the Contractor's Proposal.

ARTICLE XIV. The Commission shall have the right, during the progress of the work, to amplify the drawings, to add explanatory specifications and to furnish additional specifications and drawings.

ARTICLE XV. The Commission further reserves the right to alter, in any way it may deem necessary for the public interests, the drawings aforesaid, in part or altogether, at any time during the progress of the work, without constituting grounds for any claim by the Contractor for payment or allowance for damages or extra service other than is provided for items of the different classes of construction under the Items of the Schedule or in Article XII.

INSPECTION

ARTICLE XVI. The Contractor shall complete the entire work to the satisfaction of the Commission and in accordance with the specifications and contract drawings and according to the other provisions of this contract and within the time specified in this contract, in the most workmanlike manner and with the highest regard to the safety of life and property and according to the lines, levels and directions given by the Engineer.

ARTICLE XVII. The Contractor shall furnish of the best description all labor and materials, plant, tools, supplies and other means of construction necessary to construct and put in complete working order all work covered by the specifications, contract drawings and provisions of this contract, including all additional specifications, drawings and details issued or required as herein provided.

ARTICLE XVIII. The Contractor hereby represents that prior to the execution of this contract he has examined in detail on the ground the location mentioned herein and indicated on the contract drawings, and that he has fully examined the contract drawings, and has read each and every clause and section of this contract and of the specifications and has had full opportunity to consider the same and make necessary investigations relating thereto; and he shall not make any claim for, or have any right to, damages or an extension of time for completion of the Works or any other concession because of any misinterpretation or misunderstanding of this contract or of the specifications or of the contract drawings, or because of any lack of information.

ARTICLE XIX. No acceptance of any part of the Works or of materials therefore shall relieve the Contractor of his obligation to furnish sound material and perform sound work, whether with respect to such part or to any other part of the Works.

ARTICLE XX. The Commission contemplates, and the Contractor hereby approves, the most thorough and minute inspection by the Commission and its Engineer, and by their representatives or subordinates, of all work and materials and of the manufacture or preparation of such materials from the beginning of construction to the final completion of the Works. It is the intention of the Commission that its Engineer shall draw the attention of the Contractor to all defects in workmanship or ma-

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terials or other errors or variations from the requirements of this contract. But no omission on the part of the Commission or its Engineer or any officer, member or subordinate of the Commission to point out such defects, errors or variations shall give the Contractor any right or claim against the City or shall in any way relieve the Contractor from his obligations according to the terms of this contract.

ARTICLE XXI. The Contractor shall at all times give to the Commission and its members, to the Engineer and his assistants and subordinates, and to any person designated by the Commission or its Chairman, all facilities, whether necessary or convenient, for inspecting the materials to be furnished and the work to be done under this contract. The members of the Commission, the Engineer and all employees of the Commission bearing his authorization or the authorization of the Commission or its Chairman, shall be admitted at any time summarily and without delay to any part of the works or to inspection of materials at any place or stage of their manufacture, preparation, shipment or delivery.

ARTICLE XXII. The Engineer shall be furnished with every reasonable facility for ascertaining whether the work is in accordance with the requirements and intention of this contract, even to the extent of uncovering or taking down portions of finished work. Should the work thus exposed or examined prove satisfactory, the uncovering or taking down and the replacing of the covering or the making good of the parts removed will be paid for at the contract prices for the class of work done; but should the work exposed or examined prove unsatisfactory, such uncovering, taking down, replacing and making good shall be at the expense of the Contractor.

ARTICLE XXIII. The inspection of the work shall not relieve the Contractor of any of his obligations to fulfill this contract as herein prescribed, and defective work shall be made good and unsuitable materials will be rejected, notwithstanding that such work and materials have been accepted or estimated for payment. If the work or any part thereof shall be found defective before the final acceptance of the whole work, the Contractor shall at his own expense forthwith make good such defect in a manner satisfactory to the Engineer, and if any

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material brought upon the ground for use in the work or selected for the same shall be condemned by the Engineer as unsuitable or not in conformity with the specifications, the Contractor shall at his own expense forthwith remove such material.

ARTICLE XXIV. To prevent disputes and litigations, the Engineer shall in all cases determine the classification, amount, quality, acceptability and fitness of the several kinds of work and materials which are to be paid for under this contract, shall determine every question in relation to the Works and the construction thereof, and shall determine every question which may arise relative to the fulfillment of this contract on the part of the Contractor. His determination and estimate shall be final and conclusive upon the Contractor, and in case any question touching this contract shall arise between the parties hereto, such determination and estimate shall be a condition precedent to the right of the Contractor to receive any money under this contract.

ARTICLE XXV. The Engineer shall make all necessary explanations as to the meaning and intention of the specifications, shall give all orders and directions contemplated therein or thereby and in every case in which a difficult or unforeseen condition shall arise in the performance of the work required by this contract.

The Contractor shall promptly obey and follow every direction which shall be given by the Engineer, including any direction which the Engineer shall give by way of withdrawal, modification or reversal of any previous direction given by him.

During the progress of the work under this contract it will be necessary for other contractors and persons employed by the City to do work in or about the construction of the Shop, including but not limited to the installation of tracks and the providing of certain finish for the Shop. The Commission reserves the right to put such other contractors and persons to work and to afford them access to the site of the work to be performed hereunder at such times as the Commission may in its discretion deem proper. The Contractor shall prosecute his work continuously and diligently and shall keep his work so advanced that the Commission will be enabled to proceed as soon as

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possible with the installation of tracks and the providing of said finish and any other construction work to be performed under other contracts and to complete the same coincidently with the completion of the Shop hereunder; and the Contractor shall so conduct his work as not to impede or interfere with the work of such other contractors or persons and shall so arrange and conduct his work that such other contractors and persons may complete their work and the Shop be put into use at the earliest possible date and for that purpose he shall afford to such other contractors or persons such facilities as the Engineer may require.

Wherever any work performed or to be performed by the Contractor under this contract shall adjoin or affect any work performed or to be performed by any other contractor or contractors of the Commission, including any work mentioned in the preceding paragraph, the Engineer shall decide any question or dispute between the Contractor and such other contractor or contractors and shall determine which of them shall perform or complete any work and the manner, time and method in which they shall perform their respective work and the facilities which each shall afford to the other or others, and his determination shall as aforesaid be final and conclusive upon the Contractor.

During the progress of the work under this contract it will also be necessary for the Interborough Company, its successors or assigns, and other contractors and persons employed by the Interborough Company, its successors or assigns, to do work in or about the equipment of the Shop, including but not limited to laying the third or power rail and installing signals. The Contractor shall prosecute his work continuously and diligently and shall keep his work so advanced that the Interborough Company, its successors or assigns, will be enabled to proceed as soon as possible with the equipment of the Shop and to complete the same coincidently with the completion of the Shop hereunder; and the Interborough Company, its successors or assigns, and the contractors or persons employed by the Interborough Company, its successors or assigns, shall have the right to enter upon the site of the work to be performed hereunder at any time for the purpose of proceeding with the work of equipping the Shop. The Contractor shall so conduct his work as not to impede or interfere with the work of the Interborough Company, its successors or assigns, or such other contractors or per-

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sons engaged in or about the construction or equipment of the Shop and shall so arrange and conduct his work that the Interborough Company, its successors or assigns, and such other contractors and persons may complete their work and the Shop be put into use at the earliest possible date and for that purpose he shall afford to the Interborough Company, its successors or assigns, and such other contractors or persons such facilities as the Engineer may require.

Wherever any work performed or to be performed by the Contractor under this contract shall adjoin or affect any work performed or to be performed by the Interborough Company, its successors or assigns or by any contractor or contractors of the Interborough Company, its successors or assigns, in connection with the equipment of the Shop, the Engineer shall determine the manner, time and method in which the Contractor shall perform his work and the facilities which he shall afford to the Interborough Company, its successors or assigns, or such other contractor or contractors and his determination shall as aforesaid be final and conclusive upon the Contractor.

ARTICLE XXVI. Any engineer substituted by the Commission in place of the Chief Engineer during the absence, illness or disability of the Chief Engineer or when the Commission shall so determine shall, during his official connection, have all the power and authority of the Chief Engineer and in all respects be recognized as such Chief Engineer.

CHAPTER III

SPECIFICATIONS

SECTION No. 1. The specifications and the contract drawings hereinafter mentioned, taken in connection with the other provisions of this contract, are intended by the Commission to be full and comprehensive, and to show all the work required to be done. But it is impossible either in advance to show all details or precisely to forecast all exigencies. The specifications and the contract drawings are to be taken, therefore, as indicating the amount of work, its nature and the method of construction so far as the same are now distinctly apprehended. The Shop is to be constructed for actual use in connection with the operation of an intraurban railroad of the highest class, adapted to the necessities of the people of New York, in the best manner, according to the best rules and usages of shop construction, and in the event of any doubt as to the meaning of any portion of the specifications or of the contract drawings, or of the text of this contract, the same shall be interpreted as calling for the best construction, both as to materials and workmanship, capable of being supplied or applied. All the clauses of the specifications and all the parts of the contract drawings are, therefore, to be understood, construed and interpreted as intending to produce the results hereinbefore stated.

SECTION No. 2. The Contractor shall construct and complete the Shop strictly in accordance with the requirements of these specifications; if in these specifications or this contract or on the contract drawings any matter or thing requisite be not contemplated, mentioned, specified or indicated or otherwise provided for, nevertheless the same is deemed to be included and the Contractor shall do the same as part of the work hereunder at the unit prices for each class of work where in the opinion of the Engineer applicable or as provided in **Article XII.**

SECTION No. 3. The contract drawings referred to in this contract and these specifications are each countersigned by the Engineer, stamped with the seal of the Commission and bear the general title:

SPECIFICATIONS

**ADDITIONS TO SHOPS
LENOX AVE. & 148TH STREET YARD
UNDER CONTRACT No. 3
CONTRACT DRAWING No.**

and are designated or numbered as follows:

C-1 to C-11 inclusive and are dated September 3, 1918.

SECTION No. 4. The sections and dimensions shown on the contract drawings are typical sections and dimensions which should be applicable to the greater part of the work. Working drawings to amplify the contract will be furnished by the Engineer to the Contractor, from which the shop drawings shall be made by him. The first of these working drawings will be given to the Contractor within thirty (30) days after this contract is delivered and the remainder from time to time as may be reasonably and necessarily required by the Contractor. Where, however, changes in the drawings are deemed necessary they may be ordered under Article XV of this contract and the Engineer shall issue such drawings and specifications as may be necessary. The Contractor shall promptly upon the delivery of this contract furnish a written statement to the Engineer showing the order in which he desires the working drawings to facilitate the prosecution of his work and this order will be followed so far as reasonably practicable and necessary. The Contractor may, but only with the written consent of the Engineer, make changes in said written statement furnished to the Engineer showing the order in which the Contractor desires the working drawings, but the Contractor will be responsible for any delay resulting from any such changes and no extension of time or other allowance or concession will be made to the Contractor on account of any such change or any delay resulting therefrom.

The Contractor may be required to place mill orders for the steel shown on the working drawings issued by the Engineer immediately upon receipt of such working drawings without waiting for approval of the shop drawings. The Contractor, however, shall be responsible for the correctness of the mill orders and the material ordered therefrom, except where changes or corrections may be made in the working drawings other than the addition of further details.

SECTION No. 6. Detail construction drawings of the existing shops may be seen at the office of the Interborough Company,

SPECIFICATIONS

and samples of materials taken in connection with test borings may be seen at the office of the Engineer. They will be exhibited to the Contractor without any guarantee on the part of the Commission as to their completeness or correctness, for such aid, if any, as may be derived from them.

SECTION No. 7. If, in the prosecution of the work, difficulties of any nature be encountered which are not indicated or suggested by the said detail construction drawings or said samples of materials, the Contractor shall take every necessary or proper precaution to overcome the unforeseen difficulty according to the direction of the Engineer and as provided in this contract and these specifications.

SECTION No. 8. The specifications do not include all requirements, but are requirements in addition to those elsewhere given or provided in this contract. The specifications and the other provisions of this contract and the contract drawings are intended to be explanatory of one another. Should, however, any discrepancy appear or any misunderstanding arise as to the import of anything contained in either, the explanation or decision of the Engineer shall be final and conclusive.

SECTION No. 9. These specifications are grouped in subdivisions as follows:

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SUBDIVISION 1

BRIEF DESCRIPTION OF THE WORK

SECTION No. 10. The work to be performed under this contract consists of constructing an addition to the existing repair shops in the Lenox Avenue and 148th Street yard of the Interborough Company. The general details of construction are indicated more particularly on the contract drawings.

SECTION No. 11. In addition to the construction of the Shop, it will be necessary to do various incidental work which is generally referred to in Article X hereof.

SUBDIVISION 2

GENERAL CLAUSES

SECTION No. 12. All materials and workmanship must be of the best class in every respect and the Engineer shall be the sole judge of their quality and efficiency.

SECTION No. 13. All the work shall be prosecuted in the manner, according to local conditions, best calculated to promote rapidity in construction, to secure safety to life and property and to reduce to the minimum any interference with abutting property and the public travel. Surface work affecting, or affected by, street traffic shall be prosecuted during such hours as will reduce such interference to a minimum. Night work shall be conducted, in accordance with the directions of the Engineer, so that annoyance to occupants of abutting property shall be reduced to a minimum, and the Engineer may, if in his judgment conditions so require, direct that night work be omitted.

SECTION No. 14. The Shop is for the use of an extensive rapid transit railroad system, which the interests of the City imperatively require shall be completed and put into operation without delay. If the Contractor shall not prosecute his work in such manner as to make it probable in the judgment of the Engineer that the work will be completed within the time limited, the Contractor, if directed by the Commission, shall increase the number of shifts and the number of men in each shift to such extent as may be necessary to insure the completion of the work within the time required by this contract or within the shortest possible time thereafter.

SECTION No. 15. In case of emergencies involving danger to life or property, continuous work with an increased force may be ordered by the Engineer for such time as may be necessary.

SECTION No. 16. No work shall be begun until the Commission shall issue to the Contractor a permit authorizing him to proceed. No permits for excavation will be issued until the Contractor has given satisfactory assurance to the Engineer that the structural steel and other material needed for construction will be available. Such permits shall be in such form and shall cover such portions of the work as the Commission may prescribe.

SPECIFICATIONS—GENERAL CLAUSES

SECTION No. 17. Before any opening is made in the surface of a street, a copy of the permit issued by the Commission shall have been filed with the Borough President not less than five (5) days, unless the Engineer shall expressly direct work to begin within a less period.

SECTION No. 18. At least one (1) week before commencing work on any part of the Shop, the Contractor shall give notice in writing to the Engineer of his intention to commence such operations; and at least one (1) week before commencing or resuming manufacture of any article called for by these specifications, the Contractor shall give notice in writing to the Engineer of his intention to commence or resume such manufacture, with the name and address of the maker and the amount and description of the material to be manufactured.

SECTION No. 19. Plans showing the proposed methods of construction shall be submitted to the Engineer and shall receive his approval before permits will be granted and before such plans are put in operation.

SECTION No. 20. In all operations connected with the Works all ordinances of the City and of the Board of Health and all laws of this State which are applicable to and control or limit in any way the actions of those engaged in the work or affecting the materials belonging to or used by them shall be respected and strictly complied with, and the Contractor shall further strictly comply with all applicable Federal, State and Municipal regulations regarding the transportation of materials in and around the City and Harbor of New York.

SECTION No. 21. Whenever the construction of the Works under the provisions of this contract shall interfere with, disturb or endanger any duly authorized subsurface structure, the work of construction at such points shall be conducted in accordance with the reasonable requirements of the Borough President or other officer or local authority having the care of and the jurisdiction or control over such subsurface structures so interfered with, disturbed or endangered.

SPECIFICATIONS—GENERAL CLAUSES

SECTION No. 22. The Contractor shall, at his own cost, provide for the water supply necessary for his work and he shall bear the cost of any inspection charge in connection therewith.

SECTION No. 24. Structural and other material to be used in the work may be stored in such location and for such periods as may be approved by the Engineer.

SECTION No. 25. In any case material may be stored only with the approval of the Engineer, revocable at any time; and if so ordered, such material shall be removed immediately by the Contractor at his own expense on receipt of the order, or within a period of time to be therein stated.

SECTION No. 26. Wherever the work is being carried on, free access must be given to every fire hydrant and fire alarm box, and when required, hydrants shall be extended by suitable tube or piping to an accessible point as approved by the Engineer, and to the satisfaction of the Chief of the Fire Department. Materials must not be piled at any time or place within ten (10) feet of any fire hydrant or fire alarm box; and where materials are unavoidably piled or placed in the vicinity of a fire hydrant or fire alarm box, and to such height as to prevent the same from being readily seen, the position of such hydrant or fire alarm box shall be indicated by suitable signals, both day and night.

The Contractor shall at his own expense guard, maintain and protect the wires, cables, ducts, manholes, posts and poles, signals and fire alarm boxes of the Fire Department. He shall not cause the interruption of the Fire Department Fire Alarm Telegraph service. No Fire Department wire, cable, duct, manhole, post or pole, signal or fire alarm box shall be disturbed except in the presence of a representative of the Bureau of Fire Alarm Telegraph. In case any such wire, cable, duct, manhole, post or pole, signal or fire alarm box shall be disturbed, it shall be restored to its original condition by the Contractor at his own expense.

SECTION No. 27. The Contractor shall at his own expense keep the work, streets and all public places occupied by him

clear of all refuse and rubbish that may accumulate from any source whatever and shall leave them in a neat condition; but this is in no way to be construed as placing upon the Contractor the usual duties of the Street Cleaning Department.

SECTION No. 28. Where access to any adjacent property is temporarily cut off, owing to the occupancy of the street by the Contractor, he must, at his own cost, render every assistance to the owner or occupant in handling such materials of any description, including all material to be removed by the Department of Street Cleaning, as may have to be taken to or removed from such property; such material shall be taken to or from the nearest accessible point that in the opinion of the Engineer is convenient for handling.

SECTION No. 29. Waste material of any character will under no conditions be permitted to remain on the streets, but must immediately on its becoming unfit for use in the work be carted away and disposed of by the Contractor at his own expense, as hereinbefore provided.

SECTION No. 30. Necessary conveniences, properly secluded from public observation, shall be constructed and maintained by the Contractor at his own expense wherever needed for the use of his employees, to the satisfaction of the Engineer and the sanitary authorities.

SECTION No. 31. Wherever necessary the Contractor shall erect and maintain at his own expense fences for the protection of adjoining property and of the adjoining public places.

SECTION No. 32. The using of fences and buildings during construction for advertising purposes, other than the name and address of the Contractor, is forbidden; all temporary buildings and fences erected by the Contractor shall be neat in appearance and shall be painted as directed by the Engineer.

SECTION No. 33. Barricades and bridges shall be erected by the Contractor at his own cost, for the protection of the work or the use of the public; they shall be substantial in character and neat in appearance.

SPECIFICATIONS—GENERAL CLAUSES

SECTION No. 34. The Engineer will prepare and furnish to the Contractor, from time to time as aforesaid, drawings amplifying such details of the contract drawings as may be necessary and drawings necessary to show the adjustment and reconstruction of all surface, subsurface and overhead structures wherever the reconstruction of the same is necessitated by the construction or operation of the Shop. These drawings must be strictly followed unless local conditions should develop during construction suggesting changes, when, with the approval of the Engineer, such changes may be permitted.

SECTION No. 35. The Contractor shall make all working or shop drawings (including drawings showing the location and details of reinforcing rods) which may be required in addition to the contract drawings, or in addition to such other drawings as the Engineer may issue in amplification of such contract drawings, as explained above. All working or shop drawings made by the Contractor shall be submitted in duplicate to the Engineer for his approval, which approval, if given, shall be indicated by his countersigning one set of such working or shop drawings and returning the same to the Contractor. Should the working or shop drawings be not approved by the Engineer, then the Engineer shall return one set of such working or shop drawings, with the necessary corrections and changes indicated thereon; and the Contractor shall make such corrections and changes and again submit drawings in duplicate for the approval of the Engineer; and no work called for by said working or shop drawings shall be done until the approval of the Engineer be obtained, which must be given or refused within twenty (20) working days after delivery to him at his office of such drawings in duplicate. The approval of shop drawings by the Engineer shall not relieve the Contractor of the responsibility for the accuracy of such shop drawings. Immediately upon final approval of such working or shop drawings by the Engineer, the Contractor shall furnish the Commission with five (5) additional copies of such approved drawings. The tracings of all the approved working or shop drawings made by the Contractor shall be delivered to the Engineer prior to or upon the completion of the Works.

SPECIFICATIONS—GENERAL CLAUSES

SECTION No. 36. During the progress of the work the Commission will give through the Engineer to the Contractor, suitable points, marks or benches, indicating the line and grade of the Shop and of the sewers, such points or bench marks to be established at such intervals as the Engineer deems necessary to enable the Contractor to perform his work. The principal lines and grades will be given by the Engineer, who may change them from time to time as may be authorized and directed by the Commission. The stakes and marks given by the Engineer shall be carefully preserved by the Contractor, who shall give to the Engineer all necessary assistance and facilities for establishing benches and plugs and for making measurements.

SECTION No. 37. Orders and directions may be given orally by the Engineer to, and shall be received and promptly obeyed by, the Contractor or his representative or any superintendent, overseer or foreman of the Contractor who may have charge of the particular work in relation to which the orders or directions are given, and a confirmation in writing of such orders or directions will be given to the Contractor by the Engineer if so requested. The Contractor or his duly authorized representative shall be present at all times on the work to receive orders and directions from the Engineer.

SECTION No. 38. Any imperfect construction which may be discovered before the final acceptance of the work shall be corrected immediately upon the requirement of the Engineer and at the Contractor's expense notwithstanding that it may have been overlooked by the Inspector.

SECTION No. 39. All work of whatever kind which during its progress and before its final acceptance shall become damaged from any cause shall be broken up or removed and shall be replaced by good and sound work at the Contractor's expense.

SECTION No. 40. If any material brought on the ground for use in the work or selected for the same shall be condemned by the Engineer as unsuitable or not in conformity with the specifications, the Contractor shall forthwith remove such material at his own expense.

SPECIFICATIONS—GENERAL CLAUSES

SECTION No. 41. The Contractor shall employ only competent, skillful and faithful men to do the work. Whenever the Engineer shall notify the Contractor in writing that in his opinion any man on the work is incompetent, unfaithful or disorderly, such man shall be discharged from the work and shall not again be employed on it.

SUBDIVISION 3

GENERAL MANNER OF PROSECUTION AND MAINTENANCE OF TRAFFIC

SECTION No. 42. No building shall, without the consent of the occupant and without notice to the Engineer, be deprived of means of access thereto; and where necessary, suitable means shall be provided, at the Contractor's expense, to permit owners and occupants to reach their premises.

SECTION No. 44. Generally the Contractor will be permitted to conduct his work in the most expeditious manner possible, having due regard for the safety of persons and property and facilities for traffic and under such instructions as the Engineer may give from time to time.

SECTION No. 45. All necessary facilities shall be furnished by the Contractor at his own expense for the benefit of street traffic both on longitudinal and cross streets.

SECTION No. 46. The Commission will insist upon the close observance of the above requirements, and no departure therefrom will be allowed, excepting upon the written permission of the Commission.

SECTION No. 46-A. The Lenox Avenue and 148th Street Yard and the repair shops therein are now being operated by the Interborough Company, and the Contractor must so conduct his work as to allow the continuous ingress and egress of trains to all parts of the said yard and shops. During the progress of the work it will be necessary to stop the operation of certain existing tracks, but no obstruction of the existing tracks or of other facilities shall be made by the Contractor before he has obtained the written consent of the Interborough Company, and he shall comply with all the conditions required in said written consent.

SUBDIVISION 4

SURFACE, SUBSURFACE AND OVERHEAD STRUCTURES

SECTION No. 47. Notice shall be given by the Contractor to all individuals, companies and the proper City officials owning or having charge of surface, subsurface or overhead structures along any part of the work, of his intention to commence operations along such part of the route, at least one (1) week in advance, and the Contractor shall file with the Engineer at the same time a copy of said notice; and he shall co-operate with the proper parties, officers or officials in charge of such structures and shall furnish them with all reasonable facilities to inspect the methods of caring for their property.

SECTION No. 48. In the rearrangement of surface, subsurface or overhead structures requiring, in the opinion of the Engineer, removal and relaying or reconstruction due to interference with the Shop structure or necessary, in the opinion of the Engineer, for the safe and convenient operation of the Shop, a tentative plan will be made by the Engineer, which will be submitted to the parties interested; if any reasonable changes are then requested by any of the said parties within ten (10) days after the submission of the tentative plan, such changes will then be made, if in the judgment of the Engineer they will best conserve the interests of all parties concerned; a further plan will then be made which, upon the approval of the Engineer, will be final.

SECTION No. 49. Whenever it becomes necessary to cut, move, change, or reconstruct any surface, subsurface or overhead structures, or connections therewith (as more particularly enumerated in Article X), such work shall be done in accordance with the standard specifications and reasonable requirements of the several owners or of the Borough President or other officer or local authority having the care of and the jurisdiction or control over such structures, except as herein elsewhere specifically provided.

SECTION No. 50. All work of reconstruction or alteration shall be done with reasonable dispatch and facilities shall be provided so that said work will interfere as little as possible with the practical working and use of such structures.

SPECIFICATIONS—SURFACE, SUBSURFACE AND OVERHEAD
STRUCTURES

SECTION No. 51. The Contractor shall at all times, by suitable bridging or other supports, maintain and support in an entirely safe condition for the usual service and to the reasonable satisfaction of the owners, all surface, subsurface and overhead structures and all their appurtenances encountered or affected during the prosecution of his work; if the maintenance of such usual service makes it necessary, the Contractor shall temporarily remove and relay or reconstruct any such surface, subsurface or overhead structure and shall restore the same or reconstruct the same in a new location prior to the completion of this contract. All surface, subsurface and overhead structures and all their appurtenances and all surfaces of whatever character along the work shall be protected from injury, and the Contractor shall fully restore such surface, subsurface and overhead structures and all their appurtenances and all such surfaces to, and shall leave them in, as useful, safe, durable and good a condition as existed before construction was begun. All the above, including also all changes of surface, subsurface and overhead structures and all their appurtenances and all surfaces of whatever character made by the Contractor for his own convenience in executing his work, shall be done at the Contractor's own expense and shall be deemed to be included in the prices stipulated in the **Schedule** for excavation and riveted steel except as herein otherwise *specifically* provided.

SECTION No. 54. In the event of the owners or the City desiring to make any addition, alteration or extension to their structures or to any work to or in connection with surface, subsurface or overhead structures owned by them or it or to lay any new structure in or across a street occupied by the Works at the time the work under this contract is in progress, the Contractor, by a written permission, shall give said owners or the City all reasonable opportunity to perform such work; provided such work or alteration for the benefit solely of the owners of subsurface structures does not cause the Contractor any serious loss or delay, as shall be determined by the Commission. The written permission from the Contractor, with three (3) prints of drawings or sketches or a description indicating the proposed work in detail, shall be submitted to and approved by the Engineer before any work shall be proceeded with under such written permission.

SUBDIVISION 5

EXCAVATION

SECTION No. 55. Special care must be taken to avoid damage wherever excavations are being made. The width of such excavations shall not exceed the width actually necessary, in the opinion of the Engineer, for the proper prosecution of the work. All excavations shall be of such dimensions as shall be necessary, in the opinion of the Engineer, for the proper and expeditious progress of the work and to permit the readjustment of all sub-surface structures encountered.

SECTION No. 56. Excavation shall be carried to such depth as may be necessary to permit the laying of such concrete bed or special foundation as shown on the drawings or as may be deemed necessary by the Engineer.

SECTION No. 57. The sides of the excavations shall be secured against slips by suitable sheet piling or sheeting, held in place by braces, shores or waling timbers, special precautions being taken where there is additional pressure due to the presence of structures. Where a movement of the ground might cause the settlement of an adjacent structure, the sheeting must be started, if near the structure, before the elevation of the bottom of the foundation of the structure is reached; if away from the structure, at such depth of the excavation as the Engineer may permit; and the excavation must not be made in advance of or below the bottom of the sheeting.

SECTION No. 58. Sheeting shall be driven wherever possible, but when it is placed against the sides of the excavations, the spaces or voids back of the sheeting must be immediately and carefully filled with suitable material to prevent as far as possible the natural ground back of the sheeting from moving.

SECTION No. 59. No payment shall be made for sheeting left in the ground or in the work unless the Engineer shall in writing require it to be left in, in which case payment shall be made for the sheeting so left in as measured by the Engineer at one-half the current market price for new material of the same grade, character and dimensions and without any allowance or payment for placing the same.

SPECIFICATIONS—EXCAVATION

SECTION No. 60. All timber used for sheeting, shoring, bracing, decking or other temporary purposes shall be sound and free from any defects that may impair its strength. It shall be provided, placed and removed at the Contractor's own cost and expense. All sheeting and timber used temporarily shall be put in place by skilled mechanics, keyed tight by wedges where necessary, and so arranged as to be withdrawn readily without endangering the adjoining soil.

SECTION No. 66. Whenever water is encountered in excavations, it shall be removed by bailing or pumping, great care being taken when pumping that the surrounding particles of soil be not disturbed or removed. If necessary to prevent such disturbances, the pumping must be done by a series of driven wells whose points are protected by fine wire cloths, the rate of flow at each well being made so slow as not to remove the particles of soil; or the pumping must be done by other means approved by the Engineer. The discharge from all pumps shall be conducted into the adjacent sewers and the discharge pipes shall be so arranged as to be readily inspected at all times to ascertain if the water is free from particles of soil.

SECTION No. 67. All carts, buckets and other vehicles used by the Contractor for the removal of material shall be tight and so arranged and so loaded as not to spill. Whenever a cart, bucket or other vehicle so used is leaky or unsuitable it shall be immediately withdrawn from the work on notification by the Engineer.

SECTION No. 68. Excavated material shall be disposed of in any place selected by the Contractor, subject to the ordinances and regulations of the City authorities governing the disposal of such material and the regulations of the United States Government as to the disposal or dumping of material in and about or near the Harbor of New York.

SECTION No. 70. Earth excavation includes the excavation of all materials of whatever nature encountered in the excavation except old concrete.

SECTION No. 71. The ordered net lines of excavation and the measurements for payment therefor will be determined as follows:

SPECIFICATIONS—EXCAVATION

(1) **COLUMN FOUNDATIONS, RETAINING WALLS AND PITS:** In excavation for column foundations, retaining walls and pits, the ordered net lines of excavation and the measurements therefor shall include the total volume from the surface of the street or ground to the bottom of the column foundation, retaining walls and pits within vertical planes six (6) inches outside the net outside lines of the bottom of such column foundation, retaining wall or pits, as ordered or indicated on the drawings.

(3) **SUBSURFACE STRUCTURES:** In excavation for subsurface structures required, in the opinion of the Engineer, to be removed, relaid or reconstructed in other than their original locations or otherwise changed because of their physical interference with column foundations, the ordered net lines of excavation and the measurements therefor will be as follows:

(a) **ELECTRIC DUCTS AND PIPE CONDUITS:** In excavation for electric ducts and pipe conduits, the ordered net lines of excavation and the measurements therefor shall include the total volume from the street surface to the bottom of such ducts or pipe conduits within vertical planes passing four (4) inches outside the net outside lines of such ducts or pipe conduits; provided, however, that if such ducts or pipe conduits shall consist of a single conduit or a group of conduits not enclosed in concrete, then the ordered net lines of excavation and the measurements therefor shall include the total volume from the street surface to the extreme bottom of such single conduit or group of conduits within vertical planes one (1) foot outside the net outside lines of such single conduit or group of conduits.

(b) **PIPES:** In excavation for pipes the ordered net lines of excavation and the measurements therefor shall include the total volume from the street surface to a depth of six (6) inches below the invert of the pipe within a trench two (2) feet wider than the interior diameter of the pipe.

(c) **MANHOLES:** In excavation for manholes the ordered net lines of excavation and the measurements therefor shall include the total volume from the street surface to

SPECIFICATIONS—EXCAVATION

the lowest part of such manhole within vertical planes one (1) foot outside the net outside lines of the bottom of such manhole.

At the intersection of two trenches or at the intersection of a pipe or other trench with an excavation made by the Contractor under orders from the Engineer for any purpose whatsoever, the cubical contents of the intersection will be allowed only once. Under no circumstances will a double allowance be made for any excavation.

No deduction from the amount of excavation to be allowed as aforesaid will be made on account of vault space or spaces occupied by pipes or other subsurface structures.

SECTION No. 72. There will be no measurement or allowance made nor money paid for excavation outside (below or wider than) the ordered net lines of excavation as indicated in Section No. 71; and no allowance will be made for any excess excavation caused by slips or slides. It is understood and agreed that for all such matters the Contractor has estimated and allowed in **Schedule Items**.

Any excess excavation in the bottom of the trench for column foundations and retaining walls below the net line of excavation shall be replaced by concrete, provided and placed at the Contractor's own expense, and any excess excavation below the subgrade of the pits and the space between the pits shall be replaced by compacted fill provided and placed at the Contractor's own expense.

SECTION No. 73. Excavation will be paid for at the prices stipulated in **Schedule Items 1, 2 and 2-A**.

SECTION No. 74. The prices stipulated for excavation in **Schedule Items 1, 2 and 2-A**, respectively, shall include the cost of excavating, of the disposal of the materials excavated, of backfilling, of all sheeting and bracing, of maintaining and supporting of openings during and after excavation, of all pumping and bailing, and of the maintenance, support, removal and reconstruction, with all incidental work, labor and material of any kind, of all subsurface structures and surfaces of whatever nature and their appurtenances, payment for which is not herein elsewhere *specifically* provided for under other **Schedule Items** or otherwise.

SUBDIVISION 6

BACKFILLING

SECTION No. 75. Excavations shall be backfilled with sand, gravel or other good, clean earth, free from perishable material and from stones exceeding six (6) inches in diameter, and not containing in any place a proportion of stone of or below that size exceeding one (1) part of stone to five (5) parts of earth. The filling shall be compacted by flooding with water or by ramming in layers not exceeding six (6) inches in depth, as required by the Engineer.

SECTION No. 76. Whenever pipes, sewers, or other subsurface structures are met, the filling must be carefully packed, rammed and tamped under and about such subsurface structures, special tools being used for the purpose. No filling of trenches with frozen earth will in any case be permitted nor will any filling be permitted over frozen material.

SECTION No. 77. As fast as the work of filling permits, sheeting and other timber supporting the sides of the excavations shall be carefully withdrawn and the spaces left by the removal of such material carefully backfilled, but if directed by the Engineer the sheeting shall be left in place.

SECTION No. 78. The cost of backfilling is deemed to be included in the prices stipulated for excavation in **Schedule Items 1, 2 and 2-A.**

SUBDIVISION 7

PILING AND TIMBERING

SECTION No. 79. The Contractor shall drive such piles as the Engineer directs. Timber piles shall be of yellow pine, spruce or any other acceptable timber free from ring shakes, decay, large knots or any other defects that will impair the strength, durability or firmness of the pile. Piles shall be trimmed clear of all limbs and knots. Every pile shall be so straight that a straight line between the centers of each end of the pile will be within the body of the pile; no reverse crooks will be admissible. Piles shall be not less than twelve (12) inches in diameter at a distance two (2) feet from the butt end nor less than six (6) inches in diameter at the point, and shall be driven to the satisfaction of the Engineer and by means of a steam hammer driver if so required by him. If necessary the points of the piles shall be protected by proper shoes, and the butts by rings or caps. Timber piles shall not be spliced unless permitted by the Engineer, and then in such manner as he directs. Piles shall be carefully cut off to the grade given by the Engineer.

SECTION No. 80. Piles shall be driven in the position and manner, and to the depth ordered; if driven in a wrong position or injured in any way by driving they shall be withdrawn and replaced by others. After being driven they shall be cut off to a true plane for proper adjustment with capping timber or masonry. The piles shall be driven to a hard bottom or until the last ten (10) blows of a hammer weighing three thousand (3,000) pounds falling freely from a height fifteen (15) feet or the equivalent will not drive the pile more than one (1) foot.

SECTION No. 81. Timber piles will be paid for at the price stipulated in **Schedule Item 12**, which price shall include the cost of furnishing, driving and preparing the piles ready for the capping timbers or masonry; the portion cut off and removed will not be included in the length measured for payment. No test piles, guide piles, or piles other than those that are a part of the finished foundation and are included within the net lines of the finished foundation will be paid for.

SPECIFICATIONS—PILING AND TIMBERING

SECTION No. 82. If in the judgment of the Engineer special conditions so require, piles of reinforced concrete of an approved form of construction shall be used. Payment for piles other than timber piles will be made as provided in **Article XII**.

SECTION No. 84. Timber grillage foundations shall be built if so directed by the Engineer.

SECTION No. 85. All foundation timber shall be of pine or spruce, or other timber permitted by the Engineer, sound and free from shakes. It shall be of such dimensions, and laid in such manner, as the special drawings to be issued shall require, and shall be held in place by spikes or good seasoned oak or locust treenails.

SECTION No. 86. No wastage will be allowed for, and the quantity of foundation timber paid for will be the amount ordered by the Engineer and placed according to his directions. Payment for foundation timber will be made at the price stipulated in **Schedule Item 13**.

SECTION No. 86-A. Long leaf yellow pine sleepers shall be provided and set under the track rails of the inspection pits. They shall be of sizes shown on the contract drawings and shall be held in place by countersunk anchor bolts. The timber shall be dressed four (4) sides and shall be free from unsound, loose and hollow knots, worm holes and knot holes and any other imperfections impairing its durability, strength or appearance, and shall be square-edge. All square lumber shall show two-thirds heart on two (2) sides and not less than one-half ($\frac{1}{2}$) heart on the two (2) other sides. Other sizes shall show two-thirds ($\frac{2}{3}$) heart on face and shall show heart two-thirds of length on edges, excepting when the width exceeds the thickness by three (3) inches or over, then it shall show heart on the edge for one-half ($\frac{1}{2}$) the length.

Payment for yellow pine sleepers, in place, will be made at the price stipulated in **Schedule Item 13-F**, which price shall include the cost of all work, labor and materials necessary or incidental to setting the sleepers to proper grade, relaying the existing rails on same, and all anchor bolts, spikes and washers necessary to fasten the rails to the sleepers.

SUBDIVISION 8

CEMENT

SECTION No. 87. All cement used in the work shall be true Portland cement, by which is meant the finely pulverized product resulting from the calcination to incipient fusion of a properly proportioned intimate mixture of argillaceous and calcareous earths or rocks, to which no addition greater than three per centum (3%) has been made subsequent to calcination.

SECTION No. 88. Before any cement is furnished, the brand shall receive the approval of the Engineer. Cement, to be acceptable, shall be of a well-known brand which has been in successful use for large engineering works in America for at least five (5) years, and which has an established reputation for uniform character. Preference will be given to cements which, by their records, show a tendency to maintain high strength of mortar with increased age.

SECTION No. 89. Cement shall be subject to inspection at the place of manufacture or on the work, and to such tests as may be ordered by the Engineer. The Engineer or his representatives shall have access at all times and places to inspect the methods of manufacture, storage and protection, and shall have liberty to inspect the daily laboratory records of tests and analyses at the cement works.

SECTION No. 90. In general, tests will conform to the methods recommended by the Committee on Uniform Tests of Cement of the American Society of Civil Engineers. Unless otherwise directed, samples will be taken at the place of manufacture by a representative of the Engineer, and sent to the Commission's laboratory, where the tests will be made. If required, tests will be made on the individual samples, without intermixing.

SECTION No. 91. The cement shall have a specific gravity of not less than 3.10 nor more than 3.25 after being thoroughly dried at a temperature of 212 degrees Fahr. The color shall be uniform, bluish-gray, free from yellow or brown particles.

SPECIFICATIONS—CEMENT

SECTION No. 92. Chemical analyses of cement made from time to time shall show a reasonably uniform composition. Cement shall contain not more than one and three-fourths per centum ($1\frac{3}{4}\%$) of sulphuric anhydride (SO_3) nor more than four per centum (4%) of magnesia (MgO).

SECTION No. 93. The fineness of the cement shall be such that it shall leave by weight a residue of not more than eight per centum (8%) on a 100-mesh sieve and not more than twenty-five per centum (25%) on a 200-mesh sieve, the wires of the sieves being respectively 0.0045 and 0.0024 inch in diameter.

SECTION No. 94. It shall develop initial set in not less than thirty (30) minutes unless a more quickly-setting cement is specifically required, and shall develop hard set in not less than one (1) hour nor more than ten (10) hours.

SECTION No. 95. Pats of neat cement, after remaining one (1) day in moist air, shall be kept in air or water of normal temperature for at least twenty-eight (28) days, or shall be exposed to an atmosphere of steam, above boiling water, in a loosely closed vessel for at least five (5) hours; and the separate pats under any of these conditions shall remain hard without any indications of checking, cracking, distortion, disintegration or blotching.

SECTION No. 96. Neat cement briquettes shall have at the end of one (1) day in moist air a breaking strength, per square inch of sectional area, of not less than one hundred and fifty (150) lbs.; at the end of seven (7) days—one (1) day in air, six (6) days in water—of not less than five hundred (500) lbs.; at the end of twenty-eight (28) days—one (1) day in air, twenty-seven (27) days in water—of not less than six hundred (600) lbs. The strength at twenty-eight (28) days shall be not less than that at seven (7) days.

Mortar briquettes, composed of one (1) part of cement and three (3) parts of standard Ottawa sand, by weight, shall have at the end of seven (7) days—one (1) day in air, six (6) days in water—a breaking strength, per square inch of sectional

SPECIFICATIONS—CEMENT

area, of not less than two hundred (200) lbs.; and at the end of twenty-eight (28) days—one (1) day in air, twenty-seven (27) days in water—of not less than three hundred (300) lbs. The strength at twenty-eight (28) days shall show an increase of not less than fifty (50) lbs. over the strength at seven (7) days.

SECTION No. 97. Tests will be made from time to time extending over longer periods than twenty-eight (28) days. If such tests show a tendency to unsoundness or unusual reduction in strength with increased age, the Engineer shall have the right to prohibit the further use of that brand and to require that another brand be substituted.

SECTION No. 98. All cement shall be held in storage to allow ample time for tests to be made before the cement is required for use in the work.

• SECTION No. 99. Cement shall be packed and delivered in canvas sacks or other strong, well-made packages, plainly marked with the manufacturer's brand and sealed in an approved manner. The weight of such package shall be uniform.

SECTION No. 100. The Contractor shall at all times keep in store on the work, or at some point convenient thereto, a sufficient supply of cement to guard against possible shortage. It shall be stored in a weather-tight building, with a tight floor a proper distance above the ground, and with sufficient floor space to admit of storing each lot of cement separately, so as to facilitate identification of each individual lot in case of necessity for further tests or rejection. Cement that has become partially set or otherwise damaged shall not be used.

SUBDIVISION 9

MORTAR

SECTION No. 101. All mortar shall be prepared from cement and sand, approved by the Engineer. These ingredients shall be thoroughly mixed dry in the proportion specified below; sufficient water shall then be added to produce a stiff paste. Water used in mortar, grout or concrete shall be clean, fresh water. Salt water will not be permitted. The mortar shall be freshly mixed for the work in hand, in proper boxes made for that purpose, and no mortar shall be used that has stood beyond such limit of time as may be determined by the Engineer.

Sand used for mortar shall be clean and shall be graded from fine to coarse to the satisfaction of the Engineer. It shall contain no grains which will not pass a one-fourth ($\frac{1}{4}$) inch mesh sieve nor more than six per centum (6%) by weight which will pass a 100-mesh sieve. Sand shall be of such quality that mortar composed of one (1) part Portland cement and three (3) parts sand by weight will have a tensile and compressive strength equal to mortar of the same consistency made from one (1) part of the same kind of cement and three (3) parts of standard Ottawa sand.

SECTION No. 102. For purposes of mixture, three hundred and seventy-five (375) pounds of Portland cement shall be estimated at three and one-half ($3\frac{1}{2}$) cubic feet of volume. The proportions for brick masonry shall be one (1) part cement to two (2) parts sand with an addition of ten per centum (10%) of hydrated lime; for pointing, one (1) part cement to one (1) part sand; for concrete masonry, as specified under the head of concrete; and for other classes of work, as directed by the Engineer.

SUBDIVISION 10

MASONRY

SECTION No. 103. All masonry, except as otherwise specified, shall be laid in Portland cement mortar, and shall be built to the forms and dimensions shown on the drawings, or as directed by the Engineer from time to time; and the system of jointing or bonding ordered by the Engineer shall be strictly followed.

SECTION No. 104. Care must be taken that no water shall interfere with the proper laying of masonry in any of its parts.

SECTION No. 105. During freezing weather no masonry shall be built unless properly protected against frost, and masonry shall not be built in exposed places where in the opinion of the Engineer it is impracticable to give such protection. During freezing weather or when there is frost in the materials to be used in the masonry, the materials shall be heated. The Contractor shall provide such appliances, subject to the approval of the Engineer, as are necessary for the heating of the sand, stone and other materials.

SECTION No. 106. During freezing weather all masonry shall be protected by a suitable covering of salt hay, canvas, tarpaulin or by such material or in such ways as may be necessary to insure it against freezing.

SECTION No. 107. During the hot weather all masonry, especially concrete, shall be kept wet by sprinkling and properly covered until it has become thoroughly set and hardened.

SECTION No. 108. Unless otherwise permitted, every joint that is to be pointed shall be raked out, within two (2) days after being laid, to a depth of at least two (2) inches.

SECTION No. 109. Pointing of the face joints of masonry shall be thoroughly made with cement mortar mixed in the proportion of one (1) part of cement to one (1) part of sand, except where otherwise specifically provided.

SPECIFICATIONS—MASONRY

SECTION No. 110. No pointing shall be done in freezing weather, and masonry laid between December 1st and April 1st shall not be pointed until permitted by the Engineer.

SECTION No. 111. Any masonry which is found to be defective from any cause whatsoever, before the final completion and acceptance of the work, shall be removed and properly rebuilt, or if damaged during such time shall be properly repaired.

SUBDIVISION 11

CONCRETE

SECTION No. 112. The concrete shall be composed of gravel or broken stone, or a mixture of both, free from all dust and dirt, mixed with the proportion of mortar specified below. The water used in mixing concrete shall be clean, fresh water. Salt water will not be permitted.

SECTION No. 113. Sand for concrete shall be of the kind specified for mortar in Subdivision 9.

SECTION No. 114. Stone for concrete shall be sound, clean gravel, or sound, hard, broken limestone or trap rock, or a mixture of such gravel and broken stone. If a mixture of gravel and broken stone is used, the Engineer may require that the gravel and broken stone be stored separately on the work and mixed in single batches as needed.

SECTION No. 115. The gravel and broken stone or the mixture of gravel and broken stone shall be graded from fine to coarse, and that which is all of one size, or practically so, shall not be used. It shall be screened or washed so as to remove all dust, and it shall contain no pieces that will pass through a hole three-eighths ($\frac{3}{8}$) of an inch in diameter, and no pieces that will not pass through a hole one and three-fourths ($1\frac{3}{4}$) inches in diameter. Broken stone or gravel for concrete, graded as above, but between three-eighths ($\frac{3}{8}$) and three-fourths ($\frac{3}{4}$) of an inch in diameter, may be required and used in special parts of the work.

Cinders for reinforced concrete shall be hard coal cinders, clean and thoroughly burnt, free from unburnt coal and other impurities. They shall be as free as possible from sulphur. The cinders shall be broken, if necessary, to a size of not more than three-fourths ($\frac{3}{4}$) inch, and shall be screened to remove all fine dust.

SECTION No. 116. In concrete where the thickness is thirty (30) inches or more, if permitted by the Engineer, the Contractor may imbed pieces of clean, sound stone whose greatest diameter does not exceed twelve (12) inches and whose least diameter or

SPECIFICATIONS—CONCRETE

thickness is not less than three-fourths ($\frac{3}{4}$) of the greatest diameter. These stones shall be set by hand in the concrete as the layers are being rammed, and shall be so placed that each stone is completely and perfectly imbedded. No two (2) stones shall be within six (6) inches of each other and no stones within four (4) inches of an exposed face, nor shall any such stone be placed nearer than six (6) inches to any reinforcing metal built in the concrete.

SECTION No. 117. The proportions of sand and stone (or gravel) and cinders used in making concrete shall be by volume as cast into the measuring box. Concrete shall be as follows: For foundations, retaining walls and floors, one (1) part cement, two and one-half ($2\frac{1}{2}$) parts sand and five (5) parts stone; for reinforced concrete roof construction, one (1) part cement, two (2) parts sand and five (5) parts steam cinders; for inspection pits, one (1) part cement, three (3) parts sand and six (6) parts cinders.

SECTION No. 118. Whenever practicable, concrete shall be machine mixed. A rotary machine of a pattern approved by the Engineer, and mixing only one batch at a time, shall be used.

SECTION No. 119. When concrete is mixed by hand the stone or gravel or cinders shall be spread on a platform in a bed about six (6) inches thick, and shall be thoroughly wet. Sand shall be spread on a platform and the requisite portion of cement spread on the sand. After thoroughly mixing the cement and sand the dry mixture thus formed shall be spread evenly over the bed of stone or cinders, wet as above, and the whole turned over until thoroughly mixed, but not less than four (4) turnings on the mixing board will be allowed in any case, water being added as necessary. Care shall be taken to keep the bed of concrete wet and avoid piling.

SECTION No. 120. Concrete shall be placed immediately after mixing in layers of such thickness as may be directed by the Engineer, and shall be thoroughly compacted throughout the mass by ramming or spading, special tamping bars or tools being used as approved by the Engineer. The amount of water used in

SPECIFICATIONS—CONCRETE

making the concrete shall be as approved by the Engineer. If a small amount of water has been used in mixing, ramming shall be continued until the water flushes to the surface; as a rule, however, concrete shall be placed wet.

SECTION No. 121. Concrete shall be allowed to set for twelve (12) hours, or more, if so directed, before any work shall be laid upon it; and no walking over or working upon the concrete shall be allowed while it is setting. Concrete shall not be flooded with water before it has thoroughly set.

SECTION No. 122. Before laying concrete the earth shall be rammed as directed.

SECTION No. 123. Wherever a section of concrete is necessarily left unfinished, leaving a surface which will be hard set before additional concrete can be laid, care shall be taken to flush the cement to such surface, and such dovetails or grooves shall be formed as may be necessary to insure a good bond with the new work; and if deemed necessary by the Engineer, the joints shall be reinforced with steel bars or dowels, furnished and placed by the Contractor at his own expense.

SECTION No. 124. In all cases of joining old with new work the old surfaces shall be thoroughly cleaned and wet, and, if required, a coating of mortar or cement shall be applied before placing the concrete.

SECTION No. 125. Suitable forms shall be provided by the Contractor to support the concrete while it is being placed. These forms shall be immediately replaced by new ones as soon as they commence to lose their proper shape. Before being used they shall be carefully cleaned of cement and dirt in order to insure a perfectly smooth surface on the concrete which is to remain exposed. The forms shall be made of wood, kept carefully planed, or made of metal sufficiently thick to enable them to retain their shape without the use of wood

No forms made of wood covered with sheet iron will be permitted.

SPECIFICATIONS—CONCRETE

SECTION No. 126. The joints in forms shall be water-tight. If forms are made of wood, the boards shall be tongued and grooved where required by the Engineer.

Every precaution shall be taken to construct the forms in such a manner as will insure a smooth and even surface on concrete which is to remain exposed.

SECTION No. 127. Forms shall be set true to line, firmly secured, and shall be so tight as to prevent water in the mortar from escaping; they shall be thoroughly wet before the concrete is placed and shall be removed as soon after the concrete has been placed as in the judgment of the Engineer may be done with safety to the work. Immediately on the removal of the forms the faces that will remain exposed shall be carefully examined and any irregularities of the surface corrected; projections shall be removed and voids shall be filled with mortar. If, however, the voids are such as to indicate an excessive loss of mortar, portions of the concrete shall be cut out to the fullness of such defects and this space shall be refilled with a rich concrete or mortar in such proportions and in such manner as the Engineer may direct.

SECTION No. 128. Where reinforcing steel or wire mesh is used, efficient means shall be provided to maintain it in the exact position it is to occupy in the completed work, and to prevent it from becoming dislodged or moved in any manner while concrete is being placed.

SECTION No. 129. Exposed faces of concrete shall be left with the natural concrete finish, the object in view being to obtain a generally smooth finished surface of uniform color. Immediately following the removal of the forms, the removal of the projections and the filling of voids as provided above, the exposed surfaces shall be rubbed down in such a manner, approved by the Engineer, as will insure this result.

It is intended to obtain concrete impervious to water; the concrete shall be mixed and deposited with this end in view.

The roof slab shall be made of cinder concrete reinforced with approved wire mesh as shown on the drawings. The surface shall be finished in proper condition to receive the water-

SPECIFICATIONS—CONCRETE

proofing. On top of the roof slab a six (6) inch cinder concrete curb shall be built at every skylight opening as indicated on the drawings, and provision shall be made for anchoring the skylights securely in place. The interior exposed surface of the concrete shall be neatly finished and the roof waterproofing shall be run up to and over the top of the curb and protected with four (4) inches of cinder concrete, as shown on the drawings.

Concrete floors with cement finish shall be built as shown on the drawings. The subgrade shall be first prepared for placing this floor by removing the ballast and other foreign matter; good earth fill shall be provided if necessary, and tamped in order to bring the subgrade to the proper level to receive the floor. Before the concrete has set a one (1) inch layer of cement shall be spread over its surface and well floated to grade in order to fill all hollows, and the top shall be divided into squares and troweled to a smooth, uniform and hard finish. Expansion joints shall be provided where directed by the Engineer.

The floor of the blacksmith shop shall be constructed of steam cinders well tamped and laid to a thickness of seven (7) inches.

Inspection pits shall be built of cinder concrete, as shown on the drawings. The electric conduits, anchor bolts and recesses for electric lights shall be placed as shown.

Cement copings, consisting of one (1) part cement and one (1) part sand, shall be placed on the walls of the Shop as shown, and the surfaces shall be thoroughly troweled.

SECTION No. 130. All concrete masonry will be measured in place in the work to the prescribed net lines ordered by the Engineer and concrete in column foundations and retaining walls will be paid for at the price stipulated in **Schedule Item 6**, which price shall include the cost of all scaffolding, centers, forms, etc., and removing the same, all troweling where required, and all other incidental work, labor and material.

Payment for the cinder concrete roof slab will be made at the price stipulated in **Schedule Item 762-E(d)**, which price shall include the cost of all scaffolding, centers, forms and removing the same, all reinforcement, all troweling where required, and all other work, labor and material necessary or incidental to installing the roof slabs in place.

Payment for the cinder concrete curbs at skylights will

SPECIFICATIONS—CONCRETE

be made at the price stipulated in **Schedule Item 762-E(e)**, which price shall include the cost of all work, labor and material necessary or incidental to constructing the curbs in place.

Payment for concrete floors will be made at the price stipulated in **Schedule Item 762-E(a)**, which price shall include the cost of preparing the subgrade, all necessary fill, tamping and all other work, labor and material necessary or incidental to the completion of the floors, except excavation, which will be paid for at the price stipulated in **Schedule Item 1**.

Payment for the cinder floor in the blacksmith shop will be made at the price stipulated in **Schedule Item 762-E(f)**, which price shall include the cost of preparing the subgrade, all necessary fill, tamping and all other work, labor and material necessary or incidental to the completion of the floor, except excavation, which will be paid for at the price stipulated in **Schedule Item 1**.

Payment for cement copings will be made at the price stipulated in **Schedule Item 762-E(c)**, which price shall include the cost of troweling and all other work, labor and material necessary or incidental to the completion of the copings in place.

Payment for cinder concrete for inspection pits will be made at the price stipulated in **Schedule Item 762-E(g)**, which price shall include the cost of all forms and removing same, making recesses for electric lights, placing conduits and anchor bolts, and for all work, labor and material necessary or incidental to the completion of the inspection pits.

Payment for one (1) inch cement floor finish will be made at the price stipulated in **Schedule Item 762-E(b)** which price shall include the cost of troweling and all other work, labor and material necessary or incidental to the completion of the floor finish.

SUBDIVISION 12

BRICK MASONRY

SECTION No. 131. Bricks for masonry shall be of the best quality common bricks, burned hard entirely through, regular and uniform in shape and size and of compact texture.

SECTION No. 132. All brick masonry shall be laid in mortar of the quality described in Subdivision 9. The bricks shall be laid to line with joints in the face work not exceeding one-fourth ($\frac{1}{4}$) of an inch in the beds, and three-eighths ($\frac{3}{8}$) of an inch on ends; the bricks shall be thoroughly wet before laying and shall be completely imbedded in mortar under the bottom and on the sides and ends at one operation, care being taken to have every joint full of mortar.

All exterior surfaces shall be smooth and regular.

SECTION No. 133. The inside faces of all walls and other exposed parts shall have all the mortar scraped off, shall be washed clean immediately after the centers have been struck, and shall be pointed and left in neat condition. The inside faces of brick walls shall be smooth pointed, ready for painting. The brick work enclosing structural columns shall be flushed full of mortar, filling all spaces between the steel and the brick walls.

SECTION No. 134. All bricks of whatever nature shall be carefully culled and if necessary gauged before laying, at the expense of the Contractor. No "bats" shall be used except in large masses of brick work, where a moderate proportion, to be determined by the Engineer, may be used, but nothing smaller than half bricks.

All unfinished work shall be racked back or toothed, as directed by the Engineer, and before new work is joined to it the faces of the brick in the old work shall be scraped entirely clean, scrubbed with a stiff brush and well moistened.

SECTION No. 135. Brick masonry will be measured in place to the lines indicated and shown on the drawings or as ordered by the Engineer and will be paid for at the price stipulated in **Schedule Item 9**, which price shall include the cost of all scaffolding, forms, centers, etc., and the removal of the same, of all plastering and pointing and of all other incidental work, labor and material.

SUBDIVISION 13

STEEL AND IRON

SECTION No. 137. Steel shall be made by the open-hearth process.

SECTION No. 138. The chemical and physical properties of finished material shall conform to the following limits:

Properties.	Structural Steel.	Rivet Steel.	Steel Castings.
Phos. (Max.).....	.04%	.04%	.05%
Sulph. " .....	.05%	.04%	.05%
Mn. " .....	.60%	.60%	.80%
Si. " .....	.10%	.10%	.35%
Ult. Str.....	60000 + 4000	50000 + 4000	65000 (Min.)
Yield Point (Min.).....	55% Ult.	55% Ult.	35000
Elongation, Min. % in 8 inches.....	1500000	1500000	
	Ult. Ten. Str.	Ult. Ten. Str.	
Elongation, Min. % in 2 inches.....	Silky.	Silky.	20%
Fracture.....			Silky, or
Cold Bends without Fracture.....	180° flat.	180° flat.	Fine granular 120° (d.=3t.)

Stock material may be substituted for the above steel if approved by the Engineer.

SECTION No. 139. The yield point shall be that strain beyond which the elongation ceases to be proportional to the weight imposed, and may be indicated by drop of beam. The speed of testing shall be governed by the Inspector.

SECTION No. 141. Chemical determinations of the percentages of carbon, phosphorus, sulphur and manganese shall be made by the manufacturer from a test ingot, so taken during the casting of each melt of steel as to fairly represent the melt. Two (2) copies of such analyses shall be furnished to the Engineer or the Inspector.

SPECIFICATIONS—STEEL AND IRON

SECTION No. 142. Sample pieces for tensile and bending tests of plates, shapes and bars shall be cut from such portions of the finished product of each melt as the Inspector may designate, and shall be stamped by him; they shall have both faces rolled and both edges milled to the usual form of a standard test specimen,—one and one-half ($1\frac{1}{2}$) inches wide on a gauged length of nine (9) inches—or with both edges parallel. The area of the minimum section shall be not less than one-half ($\frac{1}{2}$) square inch.

SECTION No. 146. Rolled steel shall be tested in the condition in which it comes from the rolls.

SECTION No. 147. At least one tensile and one bending test shall be made from each melt of steel as rolled. In case steel differing three-eighths ($\frac{3}{8}$) of an inch or more in thickness is rolled from one melt, a test shall be made from the thickest and from the thinnest material rolled.

SECTION No. 148. If the above tests do not fulfill the requirements of these specifications, duplicate tests may be made at the discretion of the Inspector, he selecting and stamping the duplicate test pieces. If these retests meet all the requirements, the melt shall be accepted.

SECTION No. 151. Sufficient discard shall be made to insure sound material free from piping or excessive segregation. The material shall be finished straight and smooth, and shall be free from all seams, flaws, cracks, defective edges or other defects. Any imperfection which may develop during the progress of the work will be sufficient cause for rejection.

SECTION No. 152. Every finished piece of steel shall have the melt number and the name of the manufacturer stamped or rolled upon it. Bars for reinforcing concrete, rivet and lattice steel, and other small parts, may be bundled with the above marks on an attached metal tag.

SECTION No. 153. A variation in weight or cross-section of any piece of steel of more than two and one-half per centum ($2\frac{1}{2}\%$) from that specified shall be sufficient cause for rejection, except in case of sheared plates exceeding one hundred (100) inches in width, where the variation may be five per centum (5%).

SPECIFICATIONS—STEEL AND IRON

SECTION No. 154. Material which, subsequent to the above tests at the mills and its acceptance there, develops weak spots, brittleness, cracks or other imperfections, or is found to have injurious defects, will be rejected at the shop and shall be replaced by the manufacturer at his own cost.

SECTION No. 155. The Engineer shall be furnished with complete copies in triplicate of all mill orders, and no material shall be rolled or work done until the Engineer has been notified so that he may arrange for the inspection.

The Engineer shall be furnished with complete copies of shipping invoices, in triplicate, with each shipment. Each invoice shall show the scale weight of each individual piece.

SECTION No. 156. The Contractor shall furnish, without extra charge, such standard test pieces as may be necessary to determine the uniform quality of the material and also the use of a reliable testing machine, with the necessary labor for testing.

WROUGHT IRON

SECTION No. 157. All wrought iron shall be double rolled, tough, fibrous and uniform in character. It shall be thoroughly welded in rolling and shall be free from surface defects.

SECTION No. 158. The methods specified for testing rolled steel shall apply generally to wrought iron. Standard test specimens shall show an ultimate strength of at least fifty thousand (50,000) pounds per square inch, and an elongation of at least eighteen per centum (18%) in eight (8) inches, with fracture wholly fibrous. Specimens shall bend cold with the fibre, through one hundred and thirty-five degrees (135°), without sign of fracture, with inner radius not to exceed the thickness of the piece tested. When nicked and bent the fracture shall show at least ninety per centum (90%) fibrous.

CAST IRON

SECTION No. 159. Cast iron shall be tough, gray iron made by the cupola process and shall contain not more than six-tenths

SPECIFICATIONS—STEEL AND IRON

per centum (0.6%) of phosphorus and not more than twelve-one-hundredths per centum (0.12%) of sulphur. No mill cinder iron, white or burnt iron or scrap of any kind will be permitted in the composition.

SECTION No. 160. The quality of the iron entering into castings shall be determined by means of the "Arbitration Bar." This is a bar one and one-fourth ($1\frac{1}{4}$) inches in diameter and fifteen (15) inches long, cast under the same circumstances as those which attended the casting of the full-sized piece. This bar shall sustain at the center, when resting upon two dull knife edges twelve (12) inches apart, a load of three thousand (3000) pounds with a deflection of at least one-tenth (0.10) of an inch before rupture.

Two (2) sets of two (2) bars shall be cast from each heat; one set from the first and the other set from the last iron entering into the castings. Each set of two (2) bars shall be made in a single mold.

SECTION No. 161. Castings shall be sound, true to pattern, free from cracks, flaws and excessive shrinkage, and shall have smooth, clean surfaces. They shall be neatly chiseled and wire-brushed before leaving the foundry. Castings which do not accurately conform to dimensions on the drawings will be rejected. Each casting shall have its distinguishing letter or number cast on it at the place indicated on the drawings.

WORKMANSHIP

SECTION No. 162. The workmanship shall be equal to the best practice in modern bridge works.

Shearing and chipping shall be neatly and accurately done and all portions of the work exposed to view neatly finished. All nuts exposed to view on the final structure shall be hexagonal. Lattice bars shall have neatly rounded ends, concentric with rivet holes.

SECTION No. 163. All materials shall be straightened in the shop before being worked in any way and again straightened after punching and before assembling, if required by the Engineer or Inspector.

SPECIFICATIONS—STEEL AND IRON

SECTION No. 184. Rods and bars to be used for reinforcing concrete shall be deformed as approved by the Engineer; plain bars will not be used.

SECTION No. 185. Bent rods shall be bent uniformly to template in a machine or press approved by the Engineer. They may be bent either at the shop or on the work. In special cases bending hot and annealing may be required.

SECTION No. 186. Nuts, bolts, rivets and other similar material shall be boxed.

SECTION No. 187. The scale weight shall be plainly marked upon every piece and box.

SECTION No. 188. Free access and information shall be given by the Contractor for a thorough inspection of material and workmanship.

SECTION No. 189. The Inspector shall make detailed reports of his inspection to the Engineer and may notify the Contractor of any defects in the material or workmanship, but all acceptances made by him shall be considered temporary, and his inspection shall in no way relieve the Contractor of full responsibility for the character and accuracy of the work.

SECTION No. 190. The Contractor shall be responsible for all errors which can be discovered by checking or examining the drawings.

SECTION No. 191. The Contractor shall furnish for the use of the Inspector a suitably equipped office at the mills and at the shops.

SECTION No. 192. All parts shall be carefully loaded, unloaded and protected from injury during transportation by such means as will be satisfactory to the Inspector. Trucks for transporting steel shall be of the underslung or other approved design and shall be equipped with skids and jacks. Steel shall be lowered

gently and not dropped. After delivery of materials at the work the Contractor will be required to store such materials on skids at least twelve (12) inches above the ground and to keep such materials in good condition. Any piece showing injurious effects of rough handling at any stage before the final acceptance of the work may be rejected.

SECTION No. 193. Payment for new steel will be made at the prices stipulated in **Schedule Items 19 and 20**. The price stipulated in **Schedule Item 20** shall include the cost of all single beams or shapes, whether milled or otherwise, with or without connections or other end details. These prices shall include the cost of material delivered and erected in the work, of all necessary cleaning and painting (where painting is required) and of all other incidental work. The quantity of metal to be paid for shall be the weight actually placed in accordance with the drawings or orders. The price stipulated in **Schedule Item 19** shall also include the cost of the maintenance, support, removal and reconstruction, with all incidental work, labor and material, etc., of all surface and overhead structures of whatever nature and their appurtenances, payment for which is not herein elsewhere *specifically* provided for under other **Schedule Items**.

For miscellaneous iron castings, such as new manhole heads and covers, gratings, etc., payment will be made at the price stipulated in **Schedule Item 25**, which price shall include the cost of the material delivered and erected in the work, also the cost of all necessary cleaning and painting (where painting is required) and of all other incidental work, labor and material.

Crane runway rails, weighing seventy (70) pounds per yard may be required to be provided and set in place on top of each row of crane runway girders. These rails shall be of the same shape and height as the existing rail for the crane runway in the existing shops. Rail splices and bolts and cast-iron rail clips with bolts and wrought-iron washers eccentrically punched for adjustment shall also be provided, similar to those now on the existing rail above mentioned.

SPECIFICATIONS—STEEL AND IRON

Payment for providing and setting the crane runway rails, in place, will be made at the price stipulated in **Schedule Item 850-AA(d)**, which price shall include the cost of all rail splices, bolts, rail clips, drilling holes, washers, etc., and all other work, labor and material necessary or incidental to installing the rails in place.

SUBDIVISION 14

PAINTING.

SECTION No. 195. All metal work, except as otherwise herein provided, shall be painted with three (3) coats of paint, as follows: shop coat, second coat and finishing coat.

SECTION No. 196. Paint shall be subject to inspection at the place of manufacture and to such tests as may be ordered by the Engineer. The Engineer shall have access at all times to all places to inspect the methods of manufacture, and shall have liberty to inspect the daily laboratory records and analyses of all such paints as are subject to his inspection.

The Contractor shall furnish all facilities required for the proper inspection of the paint and its manufacture. All containers will be sealed by the Inspector at the time of inspection.

SECTION No. 197. All proportions mentioned in this specification are by weight, except when otherwise noted.

SECTION No. 198. The paint formulae are as follows:

PAINT FORMULAE.

	<i>Shop Coat</i>	<i>Second Coat</i>	<i>Finishing Coat</i>
Pigment	500 pounds	37%	30%
Vehicle	16½ gal.	63%	70%

VEHICLE FORMULAE.

Raw linseed oil...	2-3 by volume	94%	88%
Boiled linseed oil...	1-3 by volume	....	....
Drier		6%	6%
Turpentine .....		....	6%

PIGMENT FORMULAE.

Red lead	100%	50%	....
Lampblack .....	....	25%	40%
Magnesium silicate ....	....	10%	20%
Silica .....	....	15%	....
Chrome yellow, medium, c. p. ....	....	....	40%

SPECIFICATIONS—PAINTING.

The standard weight of second coat shall be ten (10) pounds seven and one-half ($7\frac{1}{2}$) ounces per gallon. The standard weight of finishing coat shall be nine (9) pounds eleven (11) ounces per gallon.

SECTION No. 199. The shop coat shall be mixed, as needed, in such quantities as can be used before it thickens in the container. Any paint which settles and thickens before use shall be rejected and a new paint mixed.

The second and finishing coats shall be furnished in a ready mixed form and shall be used without the subsequent addition of any material.

All paints shall be properly prepared, using only the specified materials in the proportions stated, with an allowable variation therefrom of not over two per centum (2%) in the quantity of any material therein. The paint shall vary not more than four (4) ounces per gallon from the standard weight.

SECTION No. 200. Raw linseed oil shall conform to the specifications of the American Society for Testing Materials for the purity of raw linseed oil from North American seed, adopted August 25, 1913.

Boiled linseed oil shall conform to the proposed specifications of the American Society for Testing Materials, 1915.

When boiled linseed oil is flowed over a plate of glass and allowed to drain in a vertical position, it shall dry free from tackiness in fifteen (15) hours at 70 degrees Fahr.

The drier shall be a pure oil drier consisting of lead and manganese salts dissolved in linseed oil and thinned with turpentine as follows:

Fifteen (15) pounds manganese dioxide plus ten (10) pounds of varnish makers' red lead, to fifty (50) gallons of oil, boiled to proper consistency and thinned with fifty (50) gallons of turpentine.

Turpentine shall conform to the proposed specification of the American Society for Testing Materials.

Red lead for the shop coat shall be of the best quality, free from all adulteration and shall contain not less than 80% nor more than 90% "true red lead" (Pb_3O_4), not over 1% inert

SPECIFICATIONS—PAINTING.

hearth materials (such as silica and alumina) and not more than 0.1% metallic lead; the remainder shall be pure lead monoxide (PbO). It shall contain no organic coloring matter and when shaken up with water shall show no alkaline reaction. It shall be of such fineness that 99½% will pass through a standard 200-mesh sieve.

Red lead for the second and finishing coats shall be of the best quality, free from all adulteration and shall contain not less than 85% true red lead (Pb_3O_4), not over 1% inert hearth materials (such as silica and alumina) and not more than 0.1% metallic lead; the remainder shall be pure lead monoxide (PbO). It shall contain no organic coloring matter and when shaken up with water shall show no alkaline reaction. It shall be of such fineness that 99½% will pass through a standard 200-mesh sieve.

Dry lampblack shall be absolutely neutral and shall contain at least 98%, by weight, of pure carbon. The tinting power of lampblack used in the finishing coat shall be the same as the standard sample.

Magnesium silicate shall be a finely ground material of crystalline structure and shall equal the standard sample.

Silica shall be ground from rock crystal and water floated. It shall be 90% pure silica (SiO_2) and shall be of such fineness that 99% will pass through a standard 200-mesh sieve. It shall equal the standard sample.

Chrome yellow, medium, c. p., shall be 98% pure lead chromate or basic lead chromate. It shall be the same as the standard sample in color and strength.

SECTION No. 201. The paint for the second and finishing coats shall be so finely ground that it will pass each of the following tests:

(a) When a small amount is placed upon a piece of glass and the glass placed in a vertical position, there shall be no separation of the oil from the pigments for at least one hour. This test is to be conducted at 70 degrees Fahr.

(b) Fill a ⅝-inch test tube with pure raw linseed oil to a height of 3½ inches and add paint until the height of the oil is five (5) inches from the bottom. Cork, shake well and let stand in a vertical position for two (2) hours. The opaque mass

SPECIFICATIONS—PAINTING

must have settled down not more than one-half ($\frac{1}{2}$) of an inch and there must be no separation of the coarser particles in the bottom of the test tube. This test is to be conducted at 70 degrees Fahr.

(c) At least 98% of the extracted pigment shall pass through a standard 200-mesh sieve.

(d) When rubbed with a spatula on a piece of glass there shall be no feeling of grittiness.

SECTION No. 202. By standard 200-mesh sieve is meant the 200-mesh sieve described in the specification of the American Society for Testing Materials for Portland cement, adopted August 16, 1909.

SECTION No. 203. The shade of the finishing coat shall match the shade of the standard sample.

The paint shall dry under normal conditions, dust free, in twelve (12) hours, and so as to be satisfactorily recoated in not less than twenty-four (24) hours nor more than forty-eight (48) hours.

The amount of hygroscopic moisture in the finished paint shall not exceed 0.5%.

There shall be no rosin in the paint as indicated by the Liebermann-Storch reaction.

SECTION No. 204. The paint shall not liver nor curdle and shall cover properly and work freely under the brush. The pigment shall remain in suspension in a satisfactory manner.

SECTION No. 205. Tests will be made against standard samples. Analyses will be made by the Engineer according to methods prescribed and on file in the office of the Engineer.

Due to the cost of inspection, the Contractor will be required to obtain paint which is made within a reasonable distance from New York, and in as large quantities as practicable. By distance from New York is meant the distance by railroad, of the paint factory from Manhattan Island. The maximum factory distance is shown in the following table:

SPECIFICATIONS—PAINTING

For quantities of less than 250 gallons made at one time, 25 miles.
For quantities of 250 to 500 gallons made at one time, 100 miles.
For quantities of 500 to 1500 gallons made at one time, 200 miles.
For quantities of over 1500 gallons made at one time, 700 miles.

Samples of standard ingredients and of the finished paints are on file in the office of the Engineer. Paints and their ingredients shall conform to these standard samples. The Contractor shall submit separate samples of all ingredients intended for use in the paints and upon approval of same shall then submit two (2) one-point samples of paint for approval.

In those details where no special instructions are given, the paint and its manufacture shall conform to the best accepted practice.

All materials for shop coat shall be delivered, inspected and sampled in their original packages.

SECTION NO. 206. All iron shall be scraped free from scale and rust and shall receive one coat of red lead paint as herein specified, before leaving the shop. All surfaces which come in contact or are enclosed shall be painted before being assembled. All turned or faced surfaces shall receive a coat of white lead and tallow before leaving the shop. If the Engineer so directs, the shop coat will be omitted on members or parts of members to be imbedded in concrete.

Where the shop coat has become damaged before or after erection, through any cause whatever, it shall be renewed with the same kind of paint as originally used, such renewal to be considered as a part of the original shop coat.

Structural steel and rods which are to be imbedded in concrete shall be protected from the weather before being put in place, and shall be cleaned and scale and rust removed before being incased in the concrete. Rods shall not be painted.

After erection the metal shall be thoroughly cleaned of all dirt, rust or scale by stiff wire brushes or sand blast, as directed, and afterward dusted. The Engineer may require that all steel after cleaning shall be wiped with a cloth dipped in a mixture composed of one-half ($\frac{1}{2}$) benzine and one-half ($\frac{1}{2}$) turpentine. When the above mixture has practically dried but before becoming absolutely dry, the steel shall be thoroughly and evenly painted

SPECIFICATIONS—PAINTING

with the second coat prescribed herein. No paint shall be applied until the cleaning has been passed upon by the Inspector.

The finishing coat shall be applied at such time after the application of the second coat and before final acceptance of the work, as in the judgment of the Engineer shall be advisable.

SECTION No. 207. Surfaces of exposed members inaccessible after erection shall be cleaned and painted before erection.

All recesses that might contain water, or through which water could enter, shall be filled with thick paint or a water-proof cement of ground skins before receiving a final painting.

All surfaces so close together as to prevent the insertion of a brush shall be painted thoroughly by using a piece of cloth, if necessary.

SECTION No. 208. All paint shall be well brushed out so as to show a smooth, even film of uniform thickness. Round brushes shall be used exclusively in applying paint.

SECTION No. 209. Painting in rainy or freezing weather or on wet or damp surfaces will not be permitted.

SECTION No. 210. Payment for painting is included in the prices for steel and iron.

SUBDIVISION 15

DRAINS

SECTION No. 211. The Contractor will be required to furnish and place pipe drains in the locations, of the dimensions and to the lines and grades ordered by the Engineer and in accordance with the following general specifications.

SECTION No. 212. All drains and appurtenances shall be built of the materials, to the sizes and dimensions, on the lines and grades, at the depths, with the connections and in the manner called for by these specifications and shown on the drawings.

Unless otherwise ordered by the Engineer, as herein described, cast-iron pipes shall conform as to quality, weight and dimensions with the standard specifications of the American Water Works Association for Class "A" pipe.

Cast-iron pipe shall be of the standard hub and spigot type and shall have caulked joints. In caulking joints the spigot shall be so adjusted in the bell as to give a uniform space all around. Gaskets of clean, sound hemp yarn, braided and twisted and tightly driven, shall be used to pack the joints. The joints shall then be filled with cement mortar consisting of one (1) part of cement and one (1) part of sand. The inside of the pipe shall be wiped clean of mortar before another length of pipe is laid and after the joint is completed care shall be taken that the pipe be not disturbed.

SECTION No. 213. The manholes shall be built as indicated on the drawings or ordered by the Engineer. Cast-iron rings or heads with perforated covers, or sealed rings or covers, of size and weight ordered by the Engineer shall be used on manholes.

Payment for cast-iron drains and appurtenances will be made at the prices stipulated in the **Schedule Items** applicable thereto. Payment for cast-iron pipe in place will be made at the prices stipulated in **Schedule Item 42** for cast-iron sewer pipe (straight pipe), with or without hubs and spigots, and in **Schedule Item 43** for (special castings) such as Y's, T's, reducers, etc.

The exposed ends of drains and spurs for future connec-

SPECIFICATIONS—DRAINS

tions shall be sealed with approved earthenware covers set in mortar, or in special cases as ordered by the Engineer, and payment therefor shall be deemed to be included in the prices stipulated in **Schedule Items 42 and 43** and no allowance will be made therefor under any other **Schedule Item** or otherwise.

SECTION No. 214.—Payment for excavation for drains and manholes will be made as provided in Section No. 73. The measurements for payment for excavation for drains will be the same as the measurements specified in subdivision (3b) of Section No. 71 for pipes and the measurements for payment for excavation for manholes will be the same as specified in subdivision (3c) of Section No. 71 for valve chambers and other structures.

The Contractor shall remove the existing twelve (12) inch cast-iron drain near Bent 13, as shown on the drawings. Payment for removing this drain shall be deemed to be included in the price stipulated in **Schedule Item 42**, and no further allowance will be made for this work under any other **Schedule Item** or otherwise.

SUBDIVISION 16

STEEL WINDOWS, SKYLIGHTS, LEADERS AND SHEET METAL WORK

SECTION No. 215. The steel sash windows in the south wall of the existing shop, on the "A" line of columns, shall be carefully removed by the Contractor when taking down said wall and shall be re-erected in the new south wall at the "C" line of columns. The Contractor shall repair or shall replace with new material any windows or parts thereof damaged or destroyed in the removal or re-erection of the steel sash windows. The existing operating devices shall be lengthened where necessary, so as to be operated from the floor level. Tap screws shall be provided to secure the frames to the lintels, and the windows shall be securely anchored and cemented in place. Two (2) coats of paint shall be applied to the steel sash re-erected.

SECTION No. 216. New steel sash windows shall be provided for the monitors over the crane runway and at other locations shown on the contract drawings. The steel sash shall be of the same design and equal in quality and thickness of metal to the existing steel windows at the east end of the existing shops, except that the pivoted sash shall be arranged as shown on the contract drawings. The windows shall be absolutely weather-proof, shall be securely fastened to the masonry and steelwork and shall be glazed with double-thick American glass. Approved geared operating devices shall be provided so that the windows can be opened and closed from the floor level; operating devices shall be so arranged as not to interfere with the running of the crane. Before beginning the manufacture of the windows the Contractor shall submit complete shop drawings for approval. Three (3) coats of paint shall be applied to all new steel sash.

SECTION No. 217. Galvanized iron skylights shall be in accordance with the sizes and details shown on the contract drawings. They shall be glazed with rough wire glass one-fourth ($\frac{1}{4}$) of an inch thick. The skylight shall be of steel puttyless glazing construction, with rolled steel supporting bars set into expansion clips so as to permit expansion and contraction of bars without injury to the glass; condensation gutters shall be of galvanized iron or zinc with asbestos fibre enclosed, forming a uniform bearing and self-adjusting seat for the glass; spring

SPECIFICATIONS—STEEL WINDOWS, SKYLIGHTS, LEADERS AND
SHEET METAL WORK

surface bearing caps of galvanized iron or zinc shall be provided, having vertical legs to prevent glass from coming in contact with the rigid supporting bars and providing one-half ($\frac{1}{2}$) inch bearing on glass; eave gutter, apron flashing, side flashing, top cap flashing and corner downspouts shall be of galvanized iron or zinc; sealing strips shall be of soft sheet lead to render joints water-tight; no putty or cement shall be used. All galvanized iron shall be No. 20 gauge galvanized iron and shall be painted with three (3) coats of paint. Type "A" skylights shall have hinged sash and shall be operated by approved geared operating devices from floor of building. Types "B" and "C" skylights shall be fixed, hip skylights. All skylights shall be securely fastened to the concrete bulkheads.

SECTION No. 218. Leaders from high roof to low roof shall be of No. 20 gauge galvanized iron of an approved quality. Elbows shall be provided at each change in direction and all joints shall be soldered. They shall be securely supported by straps.

Leaders from low roof to subsurface drains and to replace those in existing shop shall be galvanized wrought iron, equal in quality to "Standard." They shall have screw joints made up with red lead and the burr made in cutting shall be carefully reamed out; they shall be securely held in place with straps or as directed.

New six (6) inch leaders shall be substituted for the existing leaders on north side of existing shops.

SECTION No. 219. Provision shall be made in the concrete roof for the installation of a smoke flue for the blacksmith shop. The size and shape of the flue shall be as directed by the Engineer.

Along the eaves of the monitor roof, gutters of No. 20 gauge galvanized iron shall be provided; they shall be well graded and securely hung or braced. Where the gutters join the reinforced concrete roof slab the connection shall be thoroughly water-tight.

SECTION No. 220. Galvanized wire strainers, No. 12 gauge, shall be provided for all leaders.

Copper sleeves and flashing, where required, shall be of 16-ounce cold rolled copper.

SECTION No. 221. All sheet metal, except copper, which is

SPECIFICATIONS—STEEL WINDOWS, SKYLIGHTS, LEADERS AND
SHEET METAL WORK

inaccessible for painting after erection shall be given (1) coat of paint, as hereinafter specified, before it is set in the work, and in general all sheet metal and leaders shall be painted three (3) coats of paint.

SECTION No. 222. Payment for removing steel sash windows from the south wall of the existing shop on the "A" line of columns and re-erecting them on the "C" line of columns will be made at the price stipulated in **Schedule Item 820-A(c)**, which price shall include the cost of all labor and materials necessary for providing new glass for broken panes, repairing and lengthening operating devices, painting, cement, tap screws, drilling holes, and all incidental labor and materials.

Payment for new steel sash windows will be made at the prices stipulated in **Schedule Item 820-A(a) and (b)**, which prices shall include the cost of all steel sash, glazing, cement, operating devices, lugs, tap screws, drilling holes in steel lintels, painting, and other incidental labor and materials. Measurement for payment for new steel sash windows will be made from out to out of sash frames.

Payment for galvanized iron skylights will be made at the prices stipulated in **Schedule Item 820-B**, which prices shall include the cost of glazing, operating devices, painting, flashing, and all other work, labor and material necessary or incidental to the erection of the skylights complete in place.

Payment for leaders will be made at the prices stipulated in **Schedule Item 768**, which prices shall include the cost of all straps, fittings, copper sleeves, strainers, flashing, soldering, connection to subsurface drains, painting and all other work, labor and materials necessary or incidental to the completion of the leaders in place. Payment under **Schedule Item 768(h)** shall include the cost of removing the existing leaders which the six (6) inch leaders replace.

Payment for galvanized iron gutters will be made at the price stipulated in **Schedule Item 765-D**, which price shall include the cost of all straps or other fastenings, flashing, soldering, painting and all other work, labor and material necessary or incidental to installing galvanized iron gutters in place.

Copper flashing will be paid for at the price stipulated in **Schedule Item 763-C**, which price shall include the cost of all work, labor and material necessary or incidental to the completion of the flashing in place.

SUBDIVISION 17

ELECTRIC WORK

SECTION No. 223. All electric conduits shall be of the best grade standard weight wrought-iron or steel piping, protected inside by a coat of zinc, enamel, or other approved preservative, and outside by a coat of zinc. They shall be delivered to the work in bundles of full length pipes, each length marked with the trade-mark of the manufacturer. They shall bend cold ninety (90) degrees about a radius equal to ten (10) diameters without signs of flaw or fracture in either pipe or enamel. Samples of conduits and boxes shall be submitted for approval before proceeding with the electric work.

SECTION No. 224. All conduits shall be carefully cleaned before and after erection, all ends shall be reamed free from burrs, and inside surfaces shall be free from all imperfections liable to injure the cable. All joints shall be made with standard couplings, well treated with red lead, and screwed up to make a water-tight joint.

Conduits built into the masonry or other parts of the structure shall be properly protected and supported, to prevent their becoming injured by the building operations.

Conduits shall be protected at all times from the entrance of water or other foreign matter by being well plugged over night or when the work is temporarily suspended, and furnished with iron caps if to be left dead ended. Special care shall be taken with conduits which are to be imbedded in masonry, to prevent their becoming choked with cement.

SECTION No. 225. Bends and offsets may be made in the field if proper tools are used, but in no case shall deformed, split or crushed conduits be used. Not more than four (4) quarter bends shall be made between any two (2) outlet boxes without special approval of the Engineer. Special conduit fittings with removable covers shall be provided where required.

All elbows, fittings, boxes or other materials installed in the work shall be protected inside by a coat of zinc, enamel or other approved preservative, and outside by a coat of zinc. All joints and connections shall be well treated with red lead and made water-tight.

All conduit not built into the masonry or other parts of the

SPECIFICATIONS—ELECTRIC WORK

structure shall be encased in a concrete envelope four (4) inches thick on all sides.

Conduits shall be so placed in the floor that no portion shall be less than two (2) inches from the finished floor surface, except where the steel floor construction makes less cover unavoidable; in the latter case a minimum cover of one and one-half ($1\frac{1}{2}$) inches will be permitted.

SECTION No. 226. All outlet and pull boxes, except in locations where special outlet or junction boxes or other fittings are called for, shall be made of cast iron with cast-iron covers, and boxes and covers shall be protected inside by a coat of enamel or other approved preservative, except in locations where special outlet or junction boxes or other fittings are called for. Boxes shall have openings threaded for the conduit ends, and conduits shall be screwed into these openings and made up with red lead to effect a water-tight joint. Boxes shall be set square with adjacent ceiling, floor, wall or beam line and shall have all conduits enter squarely. All conduit ends inside of boxes shall be fitted with bushings. Covers shall be water-tight and secured to boxes with brass screws, and no other boxes or covers shall be used except under special permission of the Engineer.

Outlet boxes shall be placed at all light locations, as indicated on the drawings. Boxes shall be firmly and permanently secured in place, and, if held with screws passing through the back, shall be made water-tight by means of a lead washer under the screw head. No box shall be drilled for more conduits than actually enter it.

Pull boxes shall be provided where indicated on the drawings, or where, in the opinion of the Engineer, they are necessary. In general a pull box shall be provided for every one hundred (100) feet of continuous conduit. These boxes shall be of ample size to receive, without crowding, all conduits entering them. All boxes shall be accessible when finish is in place, and where covers are exposed on finished walls or ceilings they shall be secured to the boxes with button head brass machine screws and painted as hereinafter provided.

SECTION No. 227. Panel-board boxes shall be built up of steel plates and angles riveted together. They shall be drilled for the necessary conduits and shall be built into or mounted on

SPECIFICATIONS—ELECTRIC WORK

the walls as indicated on the drawings. Brass machine screws and special nuts shall be provided for securing trim to boxes. All conduits entering these boxes shall be secured with lock nuts and bushings.

SECTION No. 228. No permanent wiring, switches, transformers, light fixtures or lamps will be required under this contract, but such temporary wires, fixtures and lamps as may be necessary for the proper conduct of the work under this contract will be required as hereinbefore specified.

SECTION No. 229. Measurements for electric conduits will be for the actual length of single conduit placed in the work, including all offsets, bends and fittings in accordance with the requirements. Electric conduits will be paid for at the prices stipulated in **Schedule Item 795**.

SECTION No. 230. Cast-iron outlet boxes and pull boxes furnished and placed in the work, will be paid for at the prices stipulated in **Schedule Items 796 and 797**.

SECTION No. 231. Steel panel-board boxes furnished and placed in the work will be paid for at the prices stipulated in **Schedule Item 799**.

SECTION No. 232. The prices stipulated in **Schedule Items 795, 796, 797 and 799** shall include the cost of all cutting and drilling of concrete or other masonry, drilling and tapping of steel, drilling and tapping of all outlet, pull or other boxes, all bushings, lock nuts, offsets, bends, fittings and all incidental work, labor and material necessary to complete the electric work as herein specified and as indicated on the drawings. These prices shall also include the cost of "snaking" the whole completed conduit system with steel band wire which shall be done to make sure that all conduits and fittings are clear and in proper shape for the installation of the wires. Any conduits which cannot be thus "snaked" shall be removed and replaced by the Contractor at his own expense. The concrete envelope for conduits not built into the structure will be paid for under **Schedule Item 6 (c)**.

SUBDIVISION 18

WATERPROOFING

SECTION No. 245. The entire roof surface of the Shop shall be waterproofed as shown on the contract drawings or as ordered. The back of the retaining wall, where ordered by the Engineer, shall be covered with a coat of pitch.

Any masonry or roof slab, placed by the Contractor, that is found to leak at any time prior to the completion of the work and final acceptance thereof by the Commission, shall be cut out and the leak stopped at the sole expense of the Contractor.

The junction between the roof of the existing repair shops and the new roof of the Shop shall be waterproofed, and the junction between the existing roof and new brick work shall be waterproofed and flashed with copper flashing.

SECTION No. 246. All surfaces to which felt waterproofing is to be applied shall be made as smooth as possible and shall be thoroughly dry before waterproofing is applied; on these surfaces there shall be spread hot melted pitch in a thick layer of uniform thickness; on this layer of pitch shall be laid a treated felt of such material as may be approved by the Engineer; this process shall be repeated until the number of layers required have been placed, and a final coat of pitch shall then be applied. Each layer of pitch shall completely and entirely cover the surface on which it is spread, without cracks or blowholes. A layer of slag or gravel shall be placed over the final coat of pitch and embedded therein while the pitch is still hot.

SECTION No. 247. The term "ply" as used in these specifications shall mean a layer of treated felt both sides of which shall be coated with pitch at the time of laying.

SECTION No. 249. Pitch shall consist of either coal-tar or asphalt as the Engineer shall elect; it shall be delivered on the work in packages that are plainly marked with the manufacturer's brand, indicating the grade and quality of the material.

SECTION No. 250. Coal-tar shall be straight-run pitch containing not less than twenty-five per centum (25%) and not more than thirty-two per centum (32%) of free carbon, and

SPECIFICATIONS—WATERPROOFING

shall soften at approximately 100° F., and melt at 150° F., determined by the cube (in water) method, being a grade in which distillate oils distilled therefrom shall have a specific gravity of 1.05.

SECTION No. 251. Asphalt shall consist of fluxed natural asphalt, or asphalt prepared by the careful distillation of asphaltic petroleum, subject to the approval of the Engineer, but however prepared, it shall comply with the following requirements:

The asphalt shall contain in its refined state not less than ninety-five per centum (95%) of bitumen soluble in cold carbon disulphide, and at least ninety-eight and one-half per centum (98½%) of the bitumen soluble in cold carbon disulphide shall be soluble in cold carbon tetrachloride. The remaining ingredients shall be such as not to exert an injurious effect on the work.

The asphalt shall not flash below 350 degrees Fahr. when tested in the New York State Closed Oil Tester. When twenty (20) grams of the material are heated for five (5) hours at a temperature of 325 degrees Fahr. in a tin box two and one-half (2½) inches in diameter it shall lose not over five per centum (5%) by weight, nor shall the penetration at 77 degrees Fahr. after such heating be less than one-half (½) of the original penetration.

The melting point of the material shall be between 150 degrees and 175 degrees Fahr. as determined by the Kraemer and Sarnow method.

The consistency shall be determined by the penetration which shall be between 75 and 100 at 77 degrees Fahr.

A briquette of the solid bitumen of cross-section of one (1) square centimeter shall have a ductility of not less than twenty (20) centimeters at 77 degrees Fahr., the material being elongated at the rate of five (5) centimeters per minute. (Dow moulds.)

All tests herein specified shall be conducted according to methods approved by the Engineer.

The penetrations indicated herein refer to the depth of penetration in hundredth centimeters of a No. 2 cambric needle weighted to one hundred (100) grams at 77 degrees Fahr. acting for five (5) seconds.

SPECIFICATIONS—WATERPROOFING

SECTION No. 252. The felt to be used shall be a felt which shall have been treated with pitch before being brought on the work and which shall weigh fourteen (14) to sixteen (16) pounds per one hundred (100) square feet. The felt and the material used in its treatment shall be approved by the Engineer.

SECTION No. 253. The felt shall be rolled out into the pitch while the latter is still hot, and pressed against it so as to insure its being completely stuck over its entire surface, great care being taken that all joints are well broken by overlapping, and that the ends of the rolls are carried up on the sides as shown on the contract drawings, or as ordered.

SECTION No. 254. The slag or gravel shall be of such a grade that no particle of same shall exceed three-eighths ($\frac{3}{8}$) of an inch in diameter nor be less than one-fourth ($\frac{1}{4}$) of an inch in diameter. It shall be free from dust and dirt. Not less than three hundred (300) pounds of slag or four hundred (400) pounds of gravel shall be used per hundred square feet of surface.

SECTION No. 255. None but competent men, especially skilled in work of this kind, shall be employed to lay the waterproofing.

SECTION No. 256. Measurements will be made on the basis of area covered and, in the case of felt waterproofing, the number of plies used, both as ordered by the Engineer, no account being taken of laps, and the waterproofing will be paid for at the prices stipulated in **Schedule Items 15-C and 15-G**, which prices shall include the cost of the layer of slag or gravel and all other work, labor and material in connection with the waterproofing.

The Contractor shall guarantee all waterproofing on the roof of the Shop not to leak within twenty (20) years from the date of completion of the Works. (See Chapter VI.)

SUBDIVISION 19

SPECIAL MATTERS

SECTION No. 269. The provisions of this subdivision are for the purpose of covering matters which are special to this contract and which are not fully covered in the general specifications, but except as herein otherwise *expressly* provided the foregoing specifications are to be construed as applying to special matters. In case of any conflict between the provisions of the foregoing general specifications and the provisions of this subdivision, the provisions of this subdivision shall govern.

The Contractor shall conduct his work in such manner and at such times and with such precautions and safeguards as may be necessary for the purpose of avoiding interference with the safe and continuous operation of the existing shops and the tracks on the site of the work and of avoiding interference with or injury to employees of the Interborough Company. The Contractor shall also comply with the requirements of the Interborough Company or other lessee or operator as to the display of **lights** and the use of scaffolding and other structures in connection with the work under this contract and shall also comply with all other reasonable requirements of the Interborough Company or other lessee or operator to the end that interference with the safe and continuous operation of the existing shops and the tracks on the site of the work and interference with or injury to employees of the Interborough Company may be avoided. If any question, dispute or conflict shall arise between the Contractor and the Interborough Company or other lessee or operator with respect to the work under this contract, the decision of the Engineer thereon shall be final and conclusive upon the Contractor. All methods of doing the work under this contract shall be subject to the approval of the Engineer, which approval must be obtained by the Contractor before the work is begun and such methods may, and upon the requirement of the Engineer shall, be changed from time to time if in the judgment of the Engineer conditions so require.

The Contractor shall be responsible for the safety and protection of said existing shops and tracks, their equipment, or for rolling stock, and for the safety and protection of all employees and other persons thereon and he shall be responsible and liable for any injury to said existing shops and tracks, their equip-

ment and for rolling stock, and for any injury to person or property occurring on account of the performance of the work under this contract, whether due to the negligence, fault or default of the Contractor or not, and the Contractor shall indemnify and save harmless the City from loss, and from liability upon any and all claims for damages, on account of injury to said existing shops and tracks, their equipment and for rolling stock, or on account of injuries to person or property or on account of the interruption of train operation occurring by reason of the performance of the work under this contract and shall also indemnify and save harmless the City from all costs and expenses in suits which may be brought against the City on account of any such injury or interruption. And the Contractor shall also indemnify and save harmless the Interborough Company or other lessee or operator of said properties from all loss and expense on account of injury to said properties, their equipment or for rolling stock, or on account of injuries to person or property or on account of the interruption of train operation occurring by reason of the performance of the work under this contract and shall indemnify and save harmless the Interborough Company or other lessee or operator from liability upon any and all claims for damages on account of such injuries and from all costs and expenses in suits which may be brought against the Interborough Company or other lessee or operator for such injuries. The liability of the Contractor is absolute and is not dependent upon any question of negligence on the part of the Contractor and neither the approval by the Engineer of the methods of doing the work nor the failure of the Engineer to call attention to improper or inadequate methods or to require a change in methods nor the neglect of the Engineer to direct the Contractor to take any particular precautions or to refrain from doing any particular thing shall excuse the Contractor in case of any such injury to said existing shops or tracks, their equipment or for rolling stock, or in case of any such injury to person or property or interruption of train operation.

In order to connect the Shop with the existing shops it will be necessary for the Contractor to remove and reconstruct portions of the walls and foundations of the existing shops and portions of the retaining walls along West 148th Street, to remove,

SPECIFICATIONS—SPECIAL MATTERS

cut and partly reconstruct portions of the steel work of the existing shops, provide shoring for such work, remove buildings covering the site, remove, shift and partly relay existing track work, remove and replace portions of the existing cement floors, reinforced concrete roof slabs and waterproofing at the junction of new work with the old, to remove drain pipes, and to furnish all the materials and labor necessary and incidental to this work, all as shown on the drawings or as ordered.

The Contractor shall not remove the wall and doors of the existing shops at Bent No. 13 until the Shop has been roofed in and windows set and glazed, so that the existing building will be protected from the weather. Canvas or wooden bulkhead walls shall be provided along Bent No. 13 and along the "A" line of columns in order to protect the existing shops and inspection sheds after the existing walls have been removed.

Payment for the removal of brick, concrete and cement walls and their foundations along Bent No. 13 and along the "A" line of columns, and cutting out and removing concrete from retaining walls along West 148th Street, will be made at the price stipulated in **Schedule Item 9-D**, which price shall include the cost of removing and disposing of such masonry and of all work, labor and materials incidental thereto.

The Contractor shall remove the steel rolling lift doors on line of Bent No. 13 and iron stairs at the "A" line of columns and re-erect same at the location shown on the drawings; he shall also build a new bridge and entrance landing from the top of the stairs to the existing building as shown on the drawings. Payment for removing existing steel rolling lift doors and stairs and re-erecting same in a new location will be made at the prices stipulated in **Schedule Items 850-AA(a) and 850-AA(b)**, respectively, which prices shall include the cost of all drilling of holes for new connections, and all other work, labor and materials necessary or incidental to removing and re-erecting the doors and stairs.

Payment for the construction of the new bridge and entrance landing, including foundations, steelwork, reinforced concrete slab, etc., will be made at the prices stipulated in the **Schedule Items** applicable thereto.

The construction of the bridge and its connection to the existing shops will necessitate removing an existing window

SPECIFICATIONS—SPECIAL MATTERS

and replacing it by a new door, as more fully shown on the drawings. Such work will involve removing and disposing of brickwork and the repair of the existing work, and securing the new steel brackets to the existing structure. Payment for removing the existing window at the location of the new bridge landing and furnishing and installing the new door will be made at the price stipulated in **Schedule Item 850-AA(c)**, which price shall include the cost of removing and disposing of brickwork, repairing wall, floor or other parts of the existing shops damaged in installing the new door or brackets, all painting and all other work, labor and materials necessary or incidental to removing the existing window and furnishing and installing the new door, in place, except that the steel brackets will be paid for at the price stipulated in **Schedule Item 19**.

The pipe railings of the bridge shall be made of galvanized wrought-iron pipe, and shall have special fittings and bases of galvanized iron; bases shall be secured to the bridge with bolts and the railing shall be painted with three (3) coats of paint. Payment for wrought-iron railings, complete in place, will be made at the price stipulated in **Schedule Item 27-D**, which price shall include the cost of all work, labor and material, including painting.

The Contractor shall remove portions of tracks Nos. 1 to 4, inclusive, as indicated on the drawings. The materials shall remain the property of the Interborough Company and the Contractor shall store these materials at or near the 148th Street yard where directed by the Engineer. Payment for removing tracks and storing the material will be made at the price stipulated in **Schedule Item 76-EE(a)**.

The Contractor shall shift portions of tracks Nos. 1, 2 and 3 as indicated on the drawings and as directed by the Engineer. Payment for shifting tracks will be made at the price stipulated in **Schedule Item 76-EE(b)**.

The Contractor shall remove portions of tracks Nos. 5, 6, 7, 8 and 9, in order to construct the inspection pits; and he shall store the track materials (which will remain the property of the Interborough Company) where directed; he shall then relay the rail on the wooden sleepers of the inspection pits. Payment for removing and storing track materials will be

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made at the price stipulated in **Schedule Item 76-EE(a)**. Payment for the construction of pits and relaying rail will be made at the prices stipulated in the **Schedule of Unit Prices** applicable thereto.

The Contractor will be required to allow and arrange with the Interborough Company to alter and reconnect such **electric conduits** and cables, third rails, lighting poles and fixtures, signals, telephone cables, gas supply pipes, steam pipes, hot water heating pipes, water supply pipes, heating radiators and other apparatus as may be necessary to properly construct the Works, as determined by the Engineer and the Interborough Company. Payment therefor will be made as provided in **Article XII**.

The Contractor shall remove the buildings now upon the site of the Shop according to the directions of the Engineer. The contents of the existing building on the site of the work, including all fixtures, shall remain the property of the Interborough Company and shall be stored by the Contractor in the Lenox Avenue and 148th Street Yard where directed by the Engineer. The Contractor shall not remove the house now enclosing transformers, switches, and cables, nor shall he disturb, or disconnect, the connections thereto until a new house has been provided in a different location and under a separate contract, and the necessary electrical equipment installed therein and completely reconnected to the existing cables, contact rails, electric lights and other appurtenances. Payment for removing the existing buildings from the site of the Shop will be made at the price stipulated in **Schedule Item 1-N**, which price shall include the cost of the disposal of the materials and all other work, labor and material in connection with clearing the site.

In order to erect the steel for the Shop it will be necessary to reframe the ends of the trusses in the existing shops to fit the new conditions. Payment for such work will be made at the price stipulated in **Schedule Item 19-R**, which price shall include the cost of re-driving rivets, cutting steel, fitting new angles, drilling holes, shoring and all other work, labor and material required for reframing the ends of the trusses in the existing shops, except that for new steel required payment will be made under **Schedule Item 19**.

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The Contractor shall remove portions of the steel beams and columns in the walls of the existing shops as shown on the drawings or as ordered. All steel beams and columns so removed which are suitable for re-erection under this contract, whether shown on the contract drawings or not, shall be so re-erected. Steel beams and columns which are not suitable for use in the new structure shall remain the property of the Interborough Company and shall be stored by the Contractor where directed by the Engineer. Payment for re-erecting old steel beams and columns will be made at the price stipulated in **Schedule Item 19-B**, which price shall include the cost of cleaning, painting and re-erecting old steel, complete in its new location, of all framing, cutting, drilling and all other incidental work, labor and material, and no payment therefor will be made under any other **Schedule Item** or otherwise except that payment for new steel and for re-framing the ends of the trusses in the existing shops will be made at the prices stipulated in **Schedule Items 19 and 19-R** as hereinbefore specified. Payment for removal of steel beams and columns whether or not re-erected in the work will be made at the price stipulated in **Schedule Item 19-C**, which price shall include the cost of unriveting and taking down and removing and storing of such material not re-erected and no payment therefor will be made under any other **Schedule Item** or otherwise. The Engineer shall be the sole judge of what material is suitable for re-erection in the new structure.

The cost of all drilling and cutting and of removing and re-driving rivets is included in the prices stipulated in **Schedule Items 19, 19-B, 19-C and 19-R** and no payment therefor will be made under any other **Schedule Item** or otherwise.

The Contractor may be required to, and if required shall, as a part of the work under this contract, make any or all of the following alterations and additions to the structures, machinery and facilities in or about the existing shops of the Interborough Company and in the addition to shops to be constructed under this contract, such alterations and additions, as at present contemplated, comprising work about as follows: The removal of 540 lineal feet of existing tracks (the material removed to remain the property of the Interborough Company and to be stored at or near the Lenox Avenue and 148th Street Yard as directed

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by the Engineer), the furnishing and installing of three standard bumpers at ends of inspection pits and the removal and disposal of 56 cubic yards of concrete pit walls; the furnishing and constructing of foundations for two wheel presses, foundations for four wheel lathes, and foundations for two swing jib cranes; the furnishing and installing of 2,000 square feet of galvanized corrugated iron partition (No. 24 gauge); the furnishing and constructing of a new timber floor about 14 inches higher than the existing floor, involving the furnishing and placing of 100 cubic yards of concrete filler for sleepers, 14,000 feet board measure of 6-inch by 8-inch timber, 17,000 feet board measure of 2-inch by 5-inch ship lap flooring and 410 lineal feet of track of 2½-inch by ¾-inch strap bars; the furnishing and placing of supports for ten 3-ton electric hoists or cranes, such work consisting of the furnishing and placing of 30 cubic yards of concrete foundations for steel framing for crane runways, 64 tons of steel work forming such crane runways, three tons of crane running rails weighing twenty (20) pounds per yard, the making of 75 cubic yards of excavation for the foundations of said crane runways and the restoring of 525 square feet of concrete floor; the removing and disposing of 575 square feet of 4-inch reinforced concrete wall; the making of changes in telpher track system, including the removal and relocation of 210 lineal feet of 15-inch I-beam straight track, the removal and relocation of 40 lineal feet of 15-inch I-beam curved track, the furnishing and installing of 400 lineal feet of 15-inch I-beam straight track and 60 lineal feet of 15-inch I-beam curved track; the excavating for and the furnishing and constructing of foundations for appurtenances of the new blacksmith shop in the addition to shops to be constructed under this contract, and the taking up and removal from the existing shops of 250 lineal feet of duct line and the relocating of such duct line in the addition to shops to be constructed under this contract; and the removing and reconstructing of partitions for air and tool rooms. Inasmuch as the Interborough Company will at all times during the progress of the work under this contract require the use, without interference, of its existing shops for the maintenance of its equipment and rolling stock, the Contractor will be required to allow and arrange with the Interborough Company to furnish the material required for the above mentioned work and to do all

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the work for the installation thereof, and payment for the above mentioned work and materials will be made to the Contractor as provided in Article XII except that in no case will the Contractor be required to receive payment for any of such work and materials at the prices stipulated in the Schedule of Unit Prices, the intention being that the Contractor for such work and materials will be paid at cost plus ten per centum (10%) as provided in Article XII unless unit prices or lump sum prices be agreed upon as provided in the third paragraph of said Article XII.

CHAPTER IV

SECURITY TO BE FURNISHED BY CONTRACTOR

ARTICLE XXVII. Simultaneously with the execution and delivery of this contract the Contractor shall give security for the performance of his obligation by filing with the Comptroller a bond in the form annexed hereto and entitled "Form of Contractor's Bond," executed by the Contractor and by two or more sureties to be corporations or persons approved by the Commission in the sum of ten thousand dollars (\$10,000). The execution of the bond must be duly proved before the delivery of the bond in the form of proof essential to entitle a deed to record in the State of New York and full affidavits of justification of the sureties must be added. In case any of the sureties upon the bond shall become insolvent or unable in the opinion of the Commission to pay promptly the amount of such bond to the extent to which such surety might be liable, then the Contractor within ten (10) days after notice by the Commission to the Contractor shall, by supplemental bond or otherwise, substitute another and sufficient surety approved by the Commission in place of the surety so insolvent or unable. If the Contractor shall fail, within such ten (10) days or such further time, if any, as the Commission may grant, to substitute another and sufficient surety, then the Contractor shall, if the Commission so elect, be deemed to be in default in the performance of his obligations hereunder and upon the said bond, and in addition to any and all other remedies the Commission may terminate this contract or may bring any proper suit or proceeding against the Contractor and the sureties or either of them or may require the Comptroller to deduct from any moneys then due or which thereafter may become due to the Contractor under this contract the amount for which the surety insolvent or unable as aforesaid shall be held and bound upon the bond; and the moneys so deducted shall be held by the Comptroller as collateral security for the performance of the condition of the bond and such moneys shall in such case be deemed to have been paid to the Contractor upon this contract.

ARTICLE XXVIII. The Contractor may, upon the approval of the Commission, deposit with the Comptroller in lieu of said bond cash equal in amount to the entire amount of the said bond or securities which are worth not less than the entire amount of

SECURITY TO BE FURNISHED BY CONTRACTOR

such bond. If securities be deposited, they shall be securities which are lawful for the investment of funds of savings banks within the State of New York and shall be approved by the Commission. A schedule of such securities with their values shall be annexed hereto and entitled "Schedule of Securities," and there shall be deposited with such securities the written approval of the Commission which it shall give when satisfied as to the character and value thereof. All securities when deposited must be payable to, or run in favor of, or be transferred to, the Comptroller. In case any of the securities so deposited shall, in the opinion of the Commission, at any time cease to be of the character of securities which are lawful for the investment of funds of savings banks within the State of New York, or shall, in the opinion of the Commission, at any time become of less value than the value stated for it or them in the said schedule, then within ten (10) days after notice to the Contractor of the objection of the Commission, the Contractor shall either substitute therefor securities which shall be approved by the Commission as of the character aforesaid and as being of at least the value of the former securities to which the Commission shall have objected as such value was originally stated in the said schedule or shall deposit with the Comptroller in cash the amount of such value of such former securities as so originally stated. In case the Contractor shall not within such ten (10) days or such further time, if any, as the Commission may grant substitute such new securities or make such deposit of cash, he shall, if the Commission so elect, be deemed to be in default in the performance of his obligations under this contract; and in addition to any and all other remedies against the Contractor, the Commission may require the Comptroller to deduct from any moneys then due or which thereafter may become due to the Contractor under this contract the amount of the original valuation of such securities objected to, and to hold such amount in lieu of such securities as if part of the original deposit or as if deposited with the Comptroller as aforesaid, and such moneys shall in such case be deemed to have been paid to the Contractor upon this contract. The securities so objected to shall upon such substitution of securities or deposit of cash in lieu thereof be returned to the Contractor.

The City shall from time to time collect all interest, divi-

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dends and other income on any securities deposited by the Contractor and shall pay the same, when and as collected, to the Contractor. If the securities are in the form of coupon bonds the coupons as they respectively become due shall be delivered to the Contractor. If the deposit be made in cash, interest shall be paid to the Contractor on such deposit at the average rate of interest received by the City on its bank balances during such period. Provided, however, that the Contractor shall not be entitled to interest, dividends or other income on any cash which shall be used or applied as hereinafter provided or on any securities the proceeds of which shall be used or applied as hereinafter provided.

ARTICLE XXIX. The said deposit, whether in cash or securities, in the form and as the same shall at any time be, shall be security for the faithful performance by the Contractor of all the covenants, conditions and requirements specified and provided for in this contract. In case of any default on the part of the Contractor in such performance, and in the further case that the City shall for or by reason of such default, whether by reason of employment of another contractor or contractors or otherwise, incur or become liable for expense or be required to make any payment or incur or suffer any loss or damage, then the Comptroller shall, upon the requirement of the Commission, forthwith pay or apply to the use of the City the amount of such expense, payment, loss or damage, including any liquidated damages, out of the said deposit in cash or securities or out of the portion of the deposit remaining at the time.

ARTICLE XXX. If such deposit be in securities, the Comptroller shall, upon the requirement of the Commission, in order to make such payment or application to the use of the City, sell at public auction in New York any of the securities which may then constitute part of such deposit upon notice to be published in three (3) daily newspapers, the first publication to be not less than ten (10) days before the sale and such publication to be made three (3) times within such ten (10) days. The Comptroller in his discretion may, and upon the requirement of the Commission shall, adjourn such sale from time to time by announcement at the time and place appointed for such sale or for such adjourned sale or sales; and without further notice or publication, he may make such sale at the time and place to which

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the same shall be so adjourned. The Comptroller shall, upon the requirement of the Commission, deduct from the proceeds of any such sale all expenses thereof and of such advertisement and pay and apply to the use of the City so much of the residue of such proceeds as may be necessary for the purpose aforesaid. And the Contractor within ten (10) days after notice from the Commission so to do shall, by further deposit, according to the requirement of the Commission, of money or securities of the character aforesaid approved by the Commission restore the said deposit with the Comptroller to the full amount originally required; and in case the Contractor shall not within such ten (10) days or such further time, if any, as may be granted by the Commission, make such further deposit of money or securities he shall, if the Commission so elect, be deemed to be in default in the performance of his obligation under this contract; and in addition to any and all other remedies against the Contractor the Commission may require the Comptroller to deduct from any moneys then due or which thereafter may become due to the Contractor under this contract such amount as may be necessary to restore the said deposit with the Comptroller to the full amount originally required; and the Comptroller shall hold the money so deducted as if part of the original deposit or as if deposited with him as aforesaid; and such moneys shall in such case be deemed to have been paid to the Contractor upon this contract. In addition to, or in lieu of, the sale above provided for, the Commission may, in the name and in behalf of the City, bring any appropriate suit or proceeding in any proper court to enforce the lien and claim of the City in and upon the said deposit, whether such deposit be in moneys or securities.

ARTICLE XXXI. If at any time when the Contractor shall otherwise be entitled to a return of the said deposit, there shall be pending any claim for injury or alleged injury to person or property occurring or alleged to have occurred on account of the work hereunder, whether by reason of the negligence, fault or default of the Contractor or otherwise, or any claim for infringement or alleged infringement of patents, or any other claim on account of any neglect, fault or default or alleged neglect, fault or default of the Contractor, for which it shall be claimed that the City shall be liable, then and in that case the said de-

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posit, including all interest, dividends and other income thereafter accruing thereon, or such part thereof as the Commission may prescribe shall, upon the requirement of the Commission, be reserved by the Comptroller as security against such claims for a time not exceeding the time when such claims would be legally barred. If and when the liability of the City on such claim or claims shall have been established by a judgment of a court of competent jurisdiction or such claim or claims shall have been admitted by the Contractor to be valid, the City may deduct the amount of such claim or claims from the said deposit before the balance of the said deposit shall be returned to the Contractor as hereinafter provided. For the purpose of making such deduction the Comptroller may sell any of the securities which may constitute part of such deposit in the manner provided in Article XXX.

ARTICLE XXXII. When the Contractor shall have fully completed the Works according to the terms of this contract and the Commission shall so certify, the Comptroller shall pay and deliver to the Contractor the said deposit or so much thereof as shall not be reserved, or shall not have been used or applied, for any of the purposes herein mentioned.

ARTICLE XXXIII. In addition and as further security there shall be deducted and retained ten per centum (10%) of the amounts certified from time to time to be due to the Contractor. Such retained percentages shall be held as further security for the faithful performance by the Contractor of all the conditions, covenants and requirements specified and provided for in this contract. The Contractor may from time to time withdraw portions of the amounts so retained upon depositing with the Comptroller corporate stock of the City of a market value equal to the amount withdrawn, in which event the provisions of this chapter in respect of securities shall apply to such corporate stock.

CHAPTER V

PAYMENTS TO CONTRACTOR

ARTICLE XXXV. In order to assist the Contractor to prosecute the work advantageously, the Engineer shall, from time to time, as the work progresses, but not more often than once a month, make in writing an estimate such as in his opinion shall be just and fair, of the amount and value of the work done and materials incorporated in the work by the Contractor according to the terms of this contract (but it is understood that in making such estimates the Engineer shall not necessarily be governed by the prices contained in the **Schedule of Unit Prices**), provided, however, that estimates may at any time be withheld or reduced, if, in the opinion of the Engineer, the work is not proceeding in accordance with this contract. The first such estimate shall be of the amount and value of the work done and materials incorporated in the work since the Contractor commenced the performance of this contract on his part. Every subsequent estimate except the final estimate shall be of the amount and value of the work done and materials incorporated in the work since the last preceding estimate was made, provided, however, that no such estimate shall be required to be made when, in the judgment of the Engineer, the total value of the work done and materials incorporated in the work since the last preceding estimate amounts to less than ten thousand dollars (\$10,000). The Engineer shall further include accepted new structural steel of all classes delivered on the site of the work or on property owned or leased by the City, but not incorporated in the work, at an amount equal to sixty per centum (60%) of an average price for such steel. Such average price shall be obtained by dividing the sum of the prices stipulated in **Schedule Items 19 and 20** by two. Any structural steel included in a partial estimate which may subsequently become lost, damaged or unsatisfactory shall be deducted from succeeding partial estimates. All such steel so accepted shall be and become the property of the City, and the Contractor at his own expense shall promptly execute, acknowledge and deliver or cause to be executed, acknowledged and delivered to the Commission for any and all such steel included in any such partial estimate proper bills of sale or other instruments in writing in a form and as re-

PAYMENTS TO CONTRACTOR

quired by Counsel to the Commission from the Contractor and from any person, firm or corporation manufacturing for, or selling or shipping or delivering to the Contractor any such steel, conveying and assuring to the City title to such steel included in such estimate free from all liens and encumbrances and the Contractor at his own expense shall mark such steel as the property of the City and shall take such other steps, if any, as Counsel to the Commission may require or regard as necessary to vest title in the City to such steel free from all liens and encumbrances. No materials not incorporated in the work, excepting such structural steel, shall be included in any estimate.

ARTICLE XXXVI. Such estimates shall not be required to be made by strict measurement, but they may be made by measurement or by estimation, or partly by one method and partly by the other, and it shall be sufficient if they are approximate only.

ARTICLE XXXVII. Upon each such estimate being made and certified in writing to the Commission, the Commission shall prepare and certify a voucher for ninety per centum (90%) of the amount stated in such estimate or certified to be the value of the work done and materials furnished as provided in Article XXXV, and the City shall within thirty (30) days after the date of the certification of such voucher by the Commission pay the same; provided, however, that the City may at all times reserve and retain from said partial payments or any of them, in addition to the ten per centum (10%) mentioned in Article XXXIII to be retained and reserved, any sum or all sums which by the terms hereof or of any law of the State of New York it is or may be authorized to reserve or retain.

ARTICLE XXXVIII. Whenever, in the opinion of the Engineer, the Contractor shall have completely performed this contract on his part and all work under this contract, the Engineer shall so certify in writing to the Commission and in his certificate shall state from actual measurements the whole amount of work done by the Contractor and also the value of such work under and according to the terms of this contract. On the expiration of forty (40) days after the acceptance by the Com-

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mission of the work herein agreed to be done by the Contractor and the filing of a certificate of the completion and acceptance of said work in the office of the Comptroller signed by the Engineer and the Commission, the City shall pay to the Contractor the amount, if any, remaining after deducting from the amount or value of such work under and according to the terms of this contract as stated in such last-mentioned certificate all such sums as shall theretofore have been paid to the Contractor under any of the provisions of this contract (exclusive of interest, if any, paid under the provisions of Article XXXIX) and also any sum or all such sums of money as by the terms hereof the City is or may be authorized to reserve or retain; provided, however, that nothing herein contained shall be construed to affect the right, hereby reserved, of the Commission to reject the whole or any portion of the aforesaid work, should the said certificate be found or known to be inconsistent with the terms of this contract, or otherwise improperly given. All prior certificates upon which partial payments may have been made, being merely estimates, shall be subject to correction in the final certificate, which final certificate may be made without notice thereof to the Contractor or of the measurements upon which it is based.

ARTICLE XXXIX. If the payment of the amount due the Contractor on any voucher shall be delayed beyond the time stipulated in Article XXXVII in the case of partial payment, or Article XXXVIII in the case of final payment, the City shall pay the Contractor interest on such amount at the rate of four and one-half per centum ($4\frac{1}{2}\%$) per annum for the period of such delay; it being understood that such payments of interest, if any, are to be in lieu of any claim of the Contractor for alleged damages for breach of contract or otherwise in case of delayed payments. Provided, however, that the Contractor shall not be entitled to interest on any sum or sums which by the terms hereof or of any law of the State of New York the City may be authorized to reserve or retain. The term for which interest shall be paid shall be reckoned to the date of payment of the voucher from the following dates: in the case of a partial payment from the thirtieth day after the certification of such voucher by the Commission, and in the case of the final payment for the work from the fortieth day after the acceptance of the work by the

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Commission and the filing of said certificate of the completion and acceptance of said work in the office of the Comptroller. The date of payment of a voucher shall be considered the day on which the voucher is ready for payment as evidenced by the records of the Department of Finance. If interest shall become due on any partial payment the amount thereof, as determined by the Commission, shall be added to a succeeding payment. If interest shall become due on a final payment it shall be paid on a supplementary voucher prepared by the Commission and forwarded to the Comptroller for payment in the usual manner.

ARTICLE XL. The City shall not nor shall any department or officer thereof be precluded or estopped by any return or certificate made or given by the Commission, the Engineer, or other officer, agent or appointee thereof under any provision of this contract, from at any time either before or after the final completion and acceptance of the work and payment therefor pursuant to any such return or certificate, showing the true and correct classification, amount, quality and character of the work done and materials furnished by the Contractor or any other person under this contract or the reasonable value of work done under Article XII of this contract or from showing at any time that any such return or certificate is untrue and incorrect or improperly made in any particular, or that the work and materials, or any part thereof, do not in fact conform to the specifications; and the City shall not be precluded or estopped, notwithstanding any such return or certificate and payment in accordance therewith, from demanding and recovering from the Contractor such damages as it may sustain by reason of his failure to comply with this contract or the specifications.

ARTICLE XLI. Neither the acceptance of the Commission or its Engineer, or any of its employees, nor any order, measurement or certificate by the Engineer, nor any order by the Commission for payment of money, nor any payment for, nor acceptance of, the whole or any part of the work, nor any extension of time, nor any possession taken by the Commission or its employees, shall operate as a waiver of any portion of this contract or of any power herein reserved to the Commission or of any right to damages herein provided; nor shall any waiver of

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any breach of this contract be held to be a waiver of any other or subsequent breach.

ARTICLE XLII. The acceptance by the Contractor of the final payment for the work shall be and shall operate as a release to the City from all claim and liability to the Contractor for anything done or furnished for, or relating to, the work or for any act, neglect, fault or default of the Commission, the City or of any person relating to or affecting the work, except only the claim against the City for the remainder, if any there be, of the amounts kept or retained as provided in this contract.

ARTICLE XLIII. If the Contractor shall claim compensation for any damage sustained by reason of any act, neglect, fault or default of the City or the Commission or their agents, he shall, within ten (10) days after the sustaining of such damage, make a written statement to the Engineer of the nature of the damage sustained. On or before the fifteenth day of the month succeeding that in which any such damage shall have been sustained, the Contractor shall file with the Engineer an itemized statement of the details and amount of such damage, and unless such statement shall be made as thus required, his claim for compensation shall be forfeited and invalidated and he shall not be entitled to payment on account of any such damage.

ARTICLE XLIV. If at any time before or within thirty (30) days after the whole work agreed herein to be performed has been completed and accepted by the City, any person or persons claiming to have performed any labor or furnished any material toward the performance or completion of this contract shall file with the Commission and with the Comptroller any such notice as is described in the Lien Law, the City may retain from any moneys which would otherwise be payable to the Contractor hereunder by the City an amount or amounts sufficient to satisfy and discharge the amount in such notice claimed to be due, together with the costs of any action or actions brought to enforce such lien created by the filing of such notice, until such lien shall be discharged as provided by law. If such lien shall be foreclosed according to law, then the City may pay the amount necessary

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to satisfy such lien, with interest and costs, to the person entitled thereto, and such payment shall be deemed to be a payment hereunder to the Contractor by the City. If the amount or amounts so retained shall not be sufficient to satisfy such lien so foreclosed with interest and costs, the deficiency may be retained by the City out of any moneys thereafter becoming due to the Contractor hereunder.

CHAPTER VI

CONTRACTOR'S LIABILITY FOR INJURIES TO PERSONS OR PROPERTY

ARTICLE XLV. The Contractor expressly admits and covenants that the drawings and specifications and other provisions of this contract, if the work be done without fault or negligence on the part of the Contractor, do not involve any danger to the foundations, walls or other parts of adjacent, abutting or overhead structures or surfaces and the Contractor will at his own expense make good any damage that shall, in the course of construction, be done to any such foundations, walls or other parts of adjacent, abutting or overhead structures or surfaces. The liability of the Contractor under this covenant is absolute and is not dependent upon any question of negligence on his part, or on the part of his agents, servants or employees, and the neglect of the Engineer to direct the Contractor to take any particular precautions or to refrain from doing any particular thing, shall not excuse the Contractor in case of any such damage.

It is the intention of the parties to this contract, and it is agreed, that in addition to indemnifying the City against all claims for damages, the Contractor shall also be liable to the owners of adjacent, abutting or overhead property or structures and to all tenants, lessees or occupants of such structures for all physical injuries to person or property which may be occasioned by the work of construction, even in cases where such owners, tenants, lessees or occupants have no legal claim against the City for such injuries.

ARTICLE XLVI. The Contractor shall during the performance of the work safely maintain the traffic on streets, avenues, highways and other public places as provided in the specifications and shall take all necessary precautions and place proper guards for the prevention of accidents and shall put up and keep at night suitable and sufficient lights.

The Contractor shall also comply with the requirements of the Interborough Company, its successors or assigns, and any other lessee or operator, as to the display of lights and the use of scaffolding and other structures in connection with the work under this contract and shall also comply with all other reason-

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able requirements of said Interborough Company, its successors or assigns, or of any other lessee or operator, to the end that interference with the safe and continuous operation of the existing shop and tracks and interference with or injury to employees may be avoided.

ARTICLE XLVII. The Contractor shall be solely responsible for all damages or injuries to person or property occurring on account of the work hereunder (including but not limited to damages or injuries to employees of the Interborough Company, its successors or assigns, or any other lessee or operator, and including damage to the existing shop and tracks, their equipment or to rolling stock), and shall indemnify and save harmless the City from loss on account of any damage to the existing shop and tracks, their equipment or to rolling stock, and from liability upon any and all claims on account of such damages or injuries to person or property or on account of the interruption of train operation or on account of any neglect, fault or default of the Contractor and from all costs and expenses in suits which may be brought against the City on account of any such damages or injuries to person or property or on account of such interruption or on account of any such neglect, fault or default; it being distinctly understood, stipulated and agreed that the Contractor shall be solely responsible and liable for and shall fully protect and indemnify the City against all claims for damages to person or property occasioned by or resulting from methods or processes in the work of construction whether such damages be attributable to negligence of the Contractor or his employees or otherwise. If compensation for any such injury to property shall be included in any judgment or award in any action or proceeding, the Contractor shall upon demand promptly reimburse the City for any payments made by it on account thereof.

The Contractor shall also indemnify and save harmless the Interborough Company, its successors and assigns, and any other lessee or operator from loss on account of any damage to any equipment of the existing Shops or to any rolling stock and from liability upon any and all claims for damages for injuries to person or property of the employees of said Interborough Company, its successors or assigns, or any other lessee or operator, including claims of such employees under the Workmen's Com-

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pensation Law, occurring on account of the work hereunder, whether due to the negligence, fault or default of the Contractor or otherwise, and from all costs and expenses in suits which may be brought against said Interborough Company, its successors or assigns, or any other lessee or operator on account of any such damages or injuries to person or property of such employees.

In case any damage shall occur to any part of the existing shops or to any equipment thereof on account of the work hereunder, whether caused by the negligence, fault or default of the Contractor or otherwise, the City shall have the right to cause such damage to be repaired and to charge the expense of such repairs to the Contractor and to deduct the amount of any such expense from any moneys, due or becoming due to the Contractor under this contract; and in case any such damage shall be to any such equipment, the Interborough Company, its successors or assigns, or other lessee or operator shall have the right to cause such damage to be repaired and the Contractor shall promptly upon demand pay the expense of such repairs to the Interborough Company, its successors or assigns, or other lessee or operator and the City, acting by the Commission, may deduct and retain or deduct and pay over to said Interborough Company, its successors or assigns, or other lessee or operator, the expense of such repairs from any moneys due or becoming due to the Contractor hereunder.

The liability of the Contractor under this Article is absolute, and is not dependent upon any question of negligence on his part or on the part of his agents, servants or employees, and the neglect of the Engineer to direct the Contractor to take any particular precautions or to refrain from doing any particular thing shall not excuse the Contractor.

ARTICLE XLVIII. In case any claim shall be made at any time by any person or corporation against the Contractor or the City for injury or alleged injury to person or property occurring or alleged to have occurred on account of the work hereunder, whether by reason of the negligence, fault or default of the Contractor or otherwise, or for any infringement or alleged infringement of patents or for any neglect, fault or default or alleged neglect, fault or default of the Contractor, the amount of such claim or so much thereof as the Commission may deem

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reasonable shall, upon the requirement and in the discretion of the Commission, be retained by the Comptroller out of any moneys then due or thereafter growing due to the Contractor hereunder (in addition to the other sums herein authorized to be so retained) as security for the payment of such claim or claims. If and when the liability of the City or the Contractor on such claim or claims shall have been established by a judgment of a court of competent jurisdiction or such claim or claims shall have been admitted by the Contractor to be valid, the said claim or claims may be paid from the amount so retained and the balance, if any, paid to the Contractor. Should there be any unsatisfied claim or claims for injury or alleged injury to person or property occurring or alleged to have occurred on account of the work hereunder whether by reason of the negligence, fault or default of the Contractor or otherwise, or for any infringement or alleged infringement of patents or for any neglect, fault or default or alleged neglect, fault or default of the Contractor at the time when the final voucher for the work is prepared and certified, the Commission shall have the right to retain out of the final payment and to deduct from the amount of said vouchers or any of them a sum in its judgment sufficient to protect the City in regard to all unsatisfied claim or claims as aforesaid, and in case the amount thus retained should be insufficient to pay the amount adjudicated to be due upon such claim or claims, the City may sue for and recover from the Contractor the amount or balance as a debt from the Contractor to the City. The Commission may further, if in its judgment such a course is necessary or proper, at the time of preparing and certifying the final voucher for the work, and as a condition of preparing and certifying the same, require the Contractor to continue his bond or other security or any part thereof as security against any claim or claims then unsatisfied or not presented for a time not exceeding the time when such claim or claims would be legally barred.

ARTICLE XLIX. The Contractor guarantees the roof of the Shop not to leak within twenty (20) years after the date of the final completion and acceptance of the Works and the Contractor, promptly upon notice from the Commission or the Engineer or the Interborough Company, its successors or assigns, or

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other operator or lessee of the Shop, shall replace all roofing (including that placed under the provisions of this Article) which shall leak within said period of twenty (20) years and in the event of his failure promptly upon such notice to replace such roofing, the City or the Interborough Company, its successors or assigns, or other operator or lessee of the Shop shall have the right to replace the same and to charge the expense thereof to the Contractor and the Contractor shall promptly pay all expense incurred for that purpose. The Contractor shall deposit with the Commission, before the final voucher shall be prepared or certified by the Commission and before any deposit of cash or securities or any part thereof given by the Contractor as security for the performance of this contract shall be surrendered, a bond to the City, its successors, assigns, and lessees, in such form as the Commission shall require and duly executed and acknowledged, in the sum of one thousand dollars (\$1,000) with two or more sureties to be corporations or persons approved by the Commission, conditioned for the faithful performance by the Contractor of all his obligations under this Article and under the other provisions of this contract with respect to such roofing. The Contractor shall, if so required by the Commission, before the final voucher shall be prepared or certified by the Commission and before said deposit or any part thereof shall be surrendered, enter into a written agreement in such form as the Commission shall require and duly executed and acknowledged with the Interborough Company, its successors or assigns, or other lessee or operator of the Shop, whereby the Contractor, in consideration of one dollar (\$1) to be paid to him by said Interborough Company, its successors or assigns, or other lessee or operator of the Shop, shall guarantee said roofing as aforesaid and agree to replace the same as aforesaid and agree to pay the expense of replacing the same, in the event of his failure to replace the same, as aforesaid. The Contractor shall further, if so required by the Commission, instead of giving such bond to the City, give said bond in said sum of one thousand dollars (\$1,000) to the Interborough Company, its successors or assigns, or other lessee or operator of the Shop, or both to the City and to said Interborough Company, its successors or assigns, or other lessee or operator of the Shop, such bond to be conditioned for the replacing of said roofing as aforesaid and the payment of the expense of

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replacing the same, in the event of his failure to replace the same, as aforesaid, and if the Contractor shall give such bond to the City, he shall at any time thereafter, if so required by the Commission, give a new bond to said Interborough Company, its successors or assigns, or other lessee or operator of the Shop, or both to the City and said Interborough Company, its successors or assigns, or other lessee or operator of the Shop, and in that case the bond given to the City shall, upon the deposit of such new bond, be cancelled and surrendered to the Contractor.

ARTICLE L. All risk of loss or damage to the Works or to any part thereof or to any of the materials, plant, tools, appliances or other things used in doing the work prior to final completion is assumed and shall be borne by the Contractor, and any such loss or damage shall be made good by the Contractor at his own cost, and the construction shall be carried forward by him in accordance with this contract, without additional cost to the City by reason of such loss or damage.

CHAPTER VII

CITY TO SECURE CONTRACTOR AGAINST INTERFERENCE BY INJUNCTIONS, TO ACQUIRE REAL ESTATE, ETC.

ARTICLE LI. The City hereby stipulates and covenants to and with the Contractor that the City will secure and assure to the Contractor so long as the Contractor shall perform the stipulations of this contract, the right to construct the Shop as prescribed in this contract free of all right, claim or other interference, whether by injunction, suit for damages or otherwise, on the part of any owner, abutting owner, or other person; but not including any interference, legal or otherwise, by patentees or persons claiming to be patentees of tools, methods or appliances.

ARTICLE LII. The Contractor shall hold himself and shall be responsible for any claims made against the City for any infringement of patents by the use of patented tools, articles or appliances in the performance or completion of the work or by the use of any process or method connected with the work or by the use of any materials used upon the work; and he shall save harmless and indemnify the City from and against all costs, expenses and damages which the City shall incur or be obliged to pay by reason of any such infringement.

ARTICLE LIII. The Shop is to be constructed within private property lying within the area bounded on the south by 148th Street, on the west by Seventh Avenue, on the north by 150th Street and on the east by Lenox Avenue. The City will put the Contractor in possession of the property upon which the Shop is to be constructed within ten (10) days after the receipt by the Commission of a written notice from the Contractor that he is ready to enter upon and take possession of such property and proceed with his work therein. In case the City shall not put the Contractor in possession of said property within said period of ten (10) days and in case the Contractor shall be actually and necessarily delayed by reason of such failure on the part of the City, then the time for the completion of the Shop shall be extended by resolution of the Commission by the amount of the time of such delay as determined by the Commission,

CITY TO SECURE CONTRACTOR

but no allowance by way of damages shall be made for such delay. In case the City shall within said period of ten (10) days put the Contractor in possession of part of said property but not of all said property and in case the Contractor shall be actually and necessarily delayed by reason of the failure of the Commission to put him in possession of all said property, then the extension of time to be granted to the Contractor shall be only for the completion of that portion of the Shop as to which the Contractor shall be so actually and necessarily delayed and the Contractor shall not be entitled to an extension of time for the completion of the balance of the Shop, nor shall he have any claim for damages. As provided in Article XXV the Contractor must afford to the Interborough Company, its successors and assigns, and any contractors or employees of the Interborough Company, its successors or assigns, a free and uninterrupted right and easement of access over a portion of said property, which portion will be designated by the Commission, for access, ingress and egress.

CHAPTER VIII

TIME FOR COMPLETION, DAMAGES FOR DELAY, ETC.

ARTICLE LIV. Time is of the essence of this contract. The Contractor shall begin actual work within thirty (30) days after the date of delivery of this contract and shall thenceforth prosecute the work continuously and diligently. The entire work covered by this contract shall be completed in all respects within six (6) months from the date of delivery of this contract.

ARTICLE LV. In the event of delay in completion of the Works beyond the period herein prescribed or beyond the period to which such time may be extended as hereinafter in this Chapter provided by resolution of the Commission, the City shall, whether the working force be increased as provided in the specifications or not, be paid damages for such delay. Inasmuch as the amount of such damages will be extremely difficult to ascertain, especially in view of the fact that the completion of the Shop is necessary for the full operation of a railroad system, it is hereby expressly agreed that such damages shall be liquidated and paid as follows: The Contractor shall pay to the City for each and every day, except Sundays and legal holidays, that he shall be in default in completing the entire work to be done under this contract the sum of three hundred dollars (\$300), which sum is hereby agreed upon not as a penalty but as liquidated damages which the City will suffer by reason of such default. The City shall have the right to deduct such amounts from any moneys due or which may thereafter become due to the Contractor under this contract. But in case the Contractor shall be actually and necessarily delayed by reason of any labor strike not caused or instituted or provoked by the Contractor or by any subcontractor, agent or representative of the Contractor, or in case the Contractor shall be actually and necessarily delayed by any injunction or by any act of the United States government or by any interference of public authority or by the suspension of the whole or any part of the work by the Commission as provided in Article LVIII, and in case the Contractor cannot, notwithstanding such strike, injunction, interference or suspension, make up for the delay so occasioned by speedier work when the Contractor shall not be so delayed, then the said date for completion shall except as hereinafter provided

TIME FOR COMPLETION, DAMAGES FOR DELAY, ETC.

be extended by resolution of the Commission to a date later than the expiration of the said period of six (6) months by the amount of the time of such delay as determined by the Commission.

ARTICLE LVI. But no injunction, strike or interference of public authority shall be ground for such extension unless and until the Contractor shall give the Commission notice of the injunction or other cause of delay with copies of the injunction or other orders and of the papers upon which the same shall have been granted, and no extension shall be granted except for the delay occasioned after the giving of such notice. Nor shall any such extension be granted in any case unless the Contractor shall prove to the satisfaction of the Commission all the facts which entitle him to such extension. The Commission and the City or either shall be accorded the right to intervene or become a party to any suit or proceeding in which any such injunction shall be obtained and to move to dissolve the same or otherwise, as the Commission or the City may deem proper. If necessary the Corporation Counsel or the Counsel to the Commission or both shall be authorized by the Contractor to appear, for that purpose, as counsel or attorneys for him.

ARTICLE LVIII. The Commission reserves the right of temporarily suspending the execution of the whole or any part of the work herein contracted to be done, if it shall deem it for the interest of the City so to do, without compensation to the Contractor for such suspension other than extending the time for completing the work, as hereinbefore provided, as much as, in the opinion of the Commission, it may have been delayed by such suspension. The length of time (expressed in days or parts of days) during which the work or any part thereof has been delayed by any act or omission on the part of the City (all which shall be determined by the Commission, which shall certify to the same in writing and whose determination and certificate thereof shall be binding and conclusive upon the Contractor) will be allowed to the Contractor and the time for the completion of the Works shall be extended by resolution of the Commission accordingly.

TIME FOR COMPLETION, DAMAGES FOR DELAY, ETC.

ARTICLE LX. Only the actual delay necessarily resulting from one or more of the causes above mentioned shall be ground for extension of time, and in case the Contractor shall be delayed at any time or for any period by two or more of the causes above mentioned, only one period of extension, if any, shall be granted for such delay and the Contractor shall not be entitled to a separate extension for each one of the causes so operating, it being understood that only the actual period of necessary delay, as determined by the Commission, irrespective of the number of causes contributing to produce such delay, will be ground for extension of time. In case the Contractor shall be actually and necessarily delayed from one or more of the causes above mentioned in the performance of any portion of the Works and not in the performance of the entire Works, then the extension of time to be granted to the Contractor shall be only for the portion of the Works as to which the Contractor shall be so delayed and the Contractor shall not be entitled by reason of such delay to an extension of time for the completion of the remainder of the Works, it being understood that if the Contractor shall be so delayed as to a portion of the Works he shall nevertheless proceed continuously and diligently with the prosecution of the remainder of the Works. No demand by the Contractor that the Commission determine and certify any matter of extension of time for the completion of the Works as aforesaid will be of any effect whatsoever unless the same be made in writing and duly served upon the Commission prior to the filing in the office of the Comptroller of the final certificate of the completion and acceptance of the work, except the maintenance of street surface. The determination of the Commission as to any matter of extension of time for completion of the Works or any part thereof arising under this contract shall be binding and conclusive.

ARTICLE LXI. The permitting of the Contractor to go on and finish the work or any part of it after the time fixed for its completion or after the date to which the time for completion may have been extended or the making of payments to the Contractor after any of such periods shall in no wise operate as a waiver on the part of the City of any of its rights under this contract.

CHAPTER IX

REMEDIES IN CASE OF CONTRACTOR'S DEFAULT

ARTICLE LXII. If the work to be done under this contract shall be abandoned by the Contractor, or if this contract shall be assigned, or the work sublet by him, otherwise than as herein specified, or if at any time the Engineer shall be of opinion, and shall so certify in writing to the Commission, that the performance of this contract is unnecessarily or unreasonably delayed or that the Contractor is wilfully violating any of the provisions or covenants of this contract or of the specifications or is not executing the same in good faith and in accordance with the terms hereof, or if the work be not completed within the time prescribed in this contract for its completion or within the time to which such completion may be extended by the Commission, or (in view of the necessity for special skill and ample financial resources in the prosecution of the work) if the Contractor shall become insolvent or bankrupt or if his property or affairs shall be put in the hands of a receiver or receivers, then and in any of such cases

(1) The Commission may notify the Contractor, by a written notice, to discontinue all work or any part thereof under this contract, and thereupon the Contractor shall discontinue the work or such part thereof, and the Commission shall thereupon have the right to contract for the completion of the Works or such part thereof in the manner prescribed by law or to place such and so many persons as it may deem advisable, by contract or otherwise, to work and complete the work herein described or such part thereof, to take possession of and use any or all of the materials, plant, tools, equipment, supplies and property of every kind provided by the Contractor for the purpose of his work and to procure other materials, plant, tools, equipment, supplies and property for the completion of the same, and to charge the expense of said labor and materials, plant, tools, equipment, supplies and property to the Contractor. The expense so charged may be deducted and paid by the City out of such moneys as may be due or may at any time thereafter grow due to the Contractor under and by virtue of this contract. And in case such expense of completing the Works or such part thereof shall exceed the amount which would have been payable under this contract for

REMEDIES IN CASE OF CONTRACTOR'S DEFAULT

the same work and materials if this contract had been completed by the Contractor, he shall pay the amount of such excess with interest to the City; and in case such expense shall be less than the amount which would have been payable under this contract for the same work and materials if this contract had been completed by the Contractor, he shall forfeit all claim to the difference; and when any particular part of the work is being carried on by the Commission, by contract or otherwise, under the provisions of this Article, the Contractor, unless he shall have been directed to discontinue all work, shall continue the remainder of the work in conformity with the terms of this contract and in such manner as in no wise to hinder or interfere with other contractors of the Commission or with persons or workmen employed as above provided, by the Commission, by contract or otherwise, to do any part of the work or to complete the same under the provisions of this Article. The Contractor shall also in any and every such case in which the Commission shall complete the Works or any part thereof under the provisions of this Article, in addition to the liability above expressed, pay to the City as liquidated damages for any delay resulting from the act, neglect, delay, fault or default of the Contractor in the construction and completion of said Shop which the Contractor herein agrees to construct and build with its appurtenances the sum of three hundred dollars (\$300) for each and every day, except Sundays and legal holidays, of such delay, which sum is hereby agreed upon not as a penalty but as liquidated damages which the City will suffer by reason of such delay. And

(2) The City may also proceed as to the Commission shall seem proper upon the Bond or other security in its possession. And

(3) The City may also bring any suit or proceeding for specific performance or for injunction or to recover damages or to obtain any other relief or for any other purpose proper under this contract.

ARTICLE LXIII. In case the Commission shall by contract or otherwise complete the Works or any part thereof under the provisions of Article LXII, the Engineer, upon the completion of the Works or such part thereof or at any time thereafter upon

REMEDIES IN CASE OF CONTRACTOR'S DEFAULT

demand in writing by either party hereto or from time to time during the course of the completion of the Works or such part thereof upon demand by the Commission, shall certify to the amount of the expense incurred by the City in the completion of the Works or such part thereof, and said certificate shall be final and conclusive and admissible in evidence against the Contractor in any litigation arising or growing out of this contract.

ARTICLE LXIV. The City may avail itself of each and every remedy herein specifically given to the City or now or hereafter existing at law or in equity or by statute, and each and every such remedy shall be in addition to every other remedy so specifically given or otherwise so existing and may be exercised from time to time and as often and in such order as may be deemed expedient by the Commission, and the exercise, or the beginning of the exercise, of one remedy shall not be deemed to be a waiver of the right to exercise, at the same time or thereafter, any other remedy, except that no two inconsistent remedies shall be exercised at the same time.

CHAPTER X

MISCELLANEOUS PROVISIONS

ARTICLE LXV. No correction or change in this contract shall be made except by written instrument duly authorized by the Commission and consented to by the Contractor and by the sureties upon his bond; but this provision shall not limit or affect the right to prescribe variations whether of construction or location as in this contract elsewhere provided.

ARTICLE LXVI. No claim shall be made by the Contractor against any member of the Commission personally under or by reason of this contract or any of its articles or provisions.

ARTICLE LXVII. The Contractor shall not assign, transfer, convey, sublet or otherwise dispose of this contract or his right, title or interest in or to the same or any part thereof without the previous consent in writing of the Commission, and he shall not assign by power of attorney or otherwise any of the moneys to become due and payable under this contract unless by and with the like consent. If the Contractor shall without such previous written consent assign, transfer, convey, sublet or otherwise dispose of this contract or of his right, title or interest therein or any of the moneys to become due under this contract, to any other person, company or corporation, this contract may at the option of the Commission be revoked and annulled and the City shall thereupon be relieved and discharged from any and all liability and obligations growing out of the same to the Contractor and to his assignee or transferee; and no right under this contract or to any money to become due hereunder shall be asserted against the City in law or in equity by reason of any so-called assignment of this contract or any part thereof or of any moneys to grow due hereunder unless authorized as aforesaid by the written consent of the Commission; provided that nothing herein contained shall be construed to hinder, prevent or affect an assignment by the Contractor for the benefit of his creditors made pursuant to the statutes of the State of New York.

ARTICLE LXVIII. In case the Commission shall cease to exist, the Legislature may provide what public officer or officers shall exercise the powers and duties of the Commission under

MISCELLANEOUS PROVISIONS

and by virtue of this contract; and in default of such provision, such powers and duties shall be deemed to be vested in the Mayor of the City. In case any officer or officers other than the Commission shall hereafter have the powers of the Commission or any of them, then the provisions of this contract shall be applicable to such officer or officers to the extent to which the powers of the Commission shall appertain to such officer or officers, and any official act or determination of such officer or officers or of the Commission shall be sufficient hereunder, anything herein to the contrary notwithstanding, if the same be done or had by lawful vote or resolution or in such manner as the Legislature may from time to time prescribe.

ARTICLE LXIX. The Contractor agrees to comply with the provisions of the Labor Law, including Section Three thereof as re-enacted by Chapter 36 of the Laws of 1909. The Contractor further agrees and stipulates that no laborer, workman or mechanic in the employ of the Contractor, subcontractor or other person doing or contracting to do the whole or a part of the work contemplated by this contract, shall be permitted or required to work more than eight (8) hours in any one calendar day, except in case of extraordinary emergency caused by fire, flood or danger to life or property; and further that the wages to be paid for a legal day's work as hereinbefore defined to all classes of such laborers, workmen or mechanics upon the work contemplated by this contract or upon any material to be used upon or in connection therewith, shall be not less than the prevailing rate for a day's work in the same trade or occupation in the locality within the state where the work hereby contemplated, on, about or in connection with which such labor is performed in its final or completed form is to be situated, erected or used; and that each such laborer, workman or mechanic employed by the Contractor or by any subcontractor or other person on, about or upon the work contemplated by this contract, shall receive such wages herein provided for. This contract shall be void and of no effect unless the Contractor shall secure compensation for the benefit of, and keep insured during the life of this contract, the employees engaged on this contract in compliance with the provisions of chapter forty-one of the laws of nineteen hundred and fourteen, known as the workmen's com-

MISCELLANEOUS PROVISIONS

pensation law, and acts amendatory thereto. In obedience to the requirements of Section Fourteen of the Labor Law it is further provided that if the provisions of the said Section Fourteen are not complied with, this contract shall be void.

ARTICLE LXX. It is the intent and understanding of the parties to this contract that each and every provision of law required to be inserted in this contract should be and is inserted herein. Furthermore, it is hereby stipulated that every such provision is to be deemed to be inserted herein; and if, through mistake or otherwise, any such provision is not inserted or is not inserted in correct form, then this contract shall forthwith, upon the application of either party, be amended by such insertion so as to comply strictly with the law and without prejudice to the rights of either party hereunder.

ARTICLE LXXI. If this contract contains any unlawful provision not an essential part of the general structure of the contract and which shall not appear to have been a controlling or very material inducement to the making thereof, the same shall be deemed to be of no effect, and shall upon the application of either party, be stricken from this contract without affecting the binding force of the contract as it shall remain after omitting such provision.

TESTIMONIUM

IN WITNESS WHEREOF, this contract has been executed for THE CITY OF NEW YORK by the PUBLIC SERVICE COMMISSION FOR THE FIRST DISTRICT under and by virtue of a resolution duly adopted by the Commission and the seal of the Commission has been hereto affixed and attested by its Secretary and these presents have been signed by its Chairman; and the CONTRACTOR has* [hereunto set hand and seal] [caused corporate seal to be hereto affixed and these presents to be executed by proper officers] the day and year first above written.

THE CITY OF NEW YORK
by the

PUBLIC SERVICE COMMISSION FOR THE FIRST DISTRICT
By

Chairman

Attest

Secretary

* If the Contractor be an individual, use the words enclosed in the first bracket; if a corporation, use the words enclosed in the second bracket.

ACKNOWLEDGMENT FOR COMMISSION

STATE OF NEW YORK, }
County of New York, } ss.:

On the day of , 1918, before me personally appeared Charles Bulkley Hubbell and James B. Walker, to me known and known to me to be the said Charles Bulkley Hubbell, the Chairman, and the said James B. Walker, the Secretary of the Public Service Commission for the First District; and the said Charles Bulkley Hubbell and James B. Walker being by me duly sworn, did depose and say, each for himself and not the one for the other, the said Charles Bulkley Hubbell, that he resides in the Borough of Manhattan, in the City, County and State of New York, that he is the Chairman of the said Commission and that he subscribed his name to the foregoing contract by virtue of the authority thereof; and the said James B. Walker, that he resides in the Borough of Manhattan, in the City, County and State of New York, that he is the Secretary of the said Commission and that he subscribed his name thereto by like authority; and both the said Charles Bulkley Hubbell and James B. Walker that they know the seal of the said Commission and that one of the seals affixed to the foregoing contract is such seal and that the same was affixed to the foregoing contract by the authority of the said Commission and of a resolution duly adopted by the same.

ACKNOWLEDGMENTS FOR CONTRACTOR

STATE OF NEW YORK, }
County of New York, } ss.:

On this day of , 1918, before me personally came
to me known and known to me to be the individual described
in and who executed the foregoing instrument, and he duly
acknowledged to me that he executed the same.

STATE OF NEW YORK, }
County of New York, } ss.:

On this day of , 1918, before me personally appeared
to me known, who, being by me first duly sworn, did depose and
say: That he resides in ,
in the State of ; that he is
of the corporation
described in and which executed the foregoing instrument; that
he knows the corporate seal of said corporation; that one of the
seals affixed to said contract is such corporate seal, and that it
was affixed thereto by order of the Board of Directors of said
corporation, and that he signed his name thereto by like authority.

SCHEDULE OF SECURITIES

(Note.—If the Contractor, upon the approval of the Commission, deposits securities in lieu of a bond, a description of such securities with their values shall be inserted below.)

**FORM OF
CONTRACTOR'S BOND**

Construction of Addition to Shops

LENOX AVENUE AND 148TH STREET YARD

(Under Contract No. 3)

FORM OF CONTRACTOR'S BOND

ADDITION TO SHOPS, LENOX AVENUE AND 148TH STREET YARD
(UNDER CONTRACT NO. 3)

Know All Men by These Presents, That

of

hereinafter called the **Contractor** and
and

hereinafter called the **Sureties** are held and firmly bound unto
The City of New York, hereinafter called the City, in the sum
of ten thousand dollars (\$10,000) lawful money of the United
States of America, to be paid to the City, for which payment
well and truly to be made the Contractor and the Sureties do
hereby bind themselves and their, and each of their, executors,
administrators, successors and assigns firmly by these presents,
as follows: The Contractor to be so held and bound for the full
amount of the said sum of ten thousand dollars (\$10,000) and
each of the said Sureties to be so held and bound only for a
portion of said sum as follows:

The said

for the sum of

dollars (\$)); the said

for the sum of

dollars (\$)); the said

for the sum of

dollars (\$)); and the said

for the sum of

dollars (\$)).

IN WITNESS WHEREOF, The Contractor and the Sureties
have hereunto set their hands and seals and such of them as
are corporations have caused their respective seals to be hereto
affixed and these presents to be attested by the proper officers,
this day of , 1918.

WHEREAS, The City by the Public Service Commission for
the First District (hereinafter called the "Commission") is about

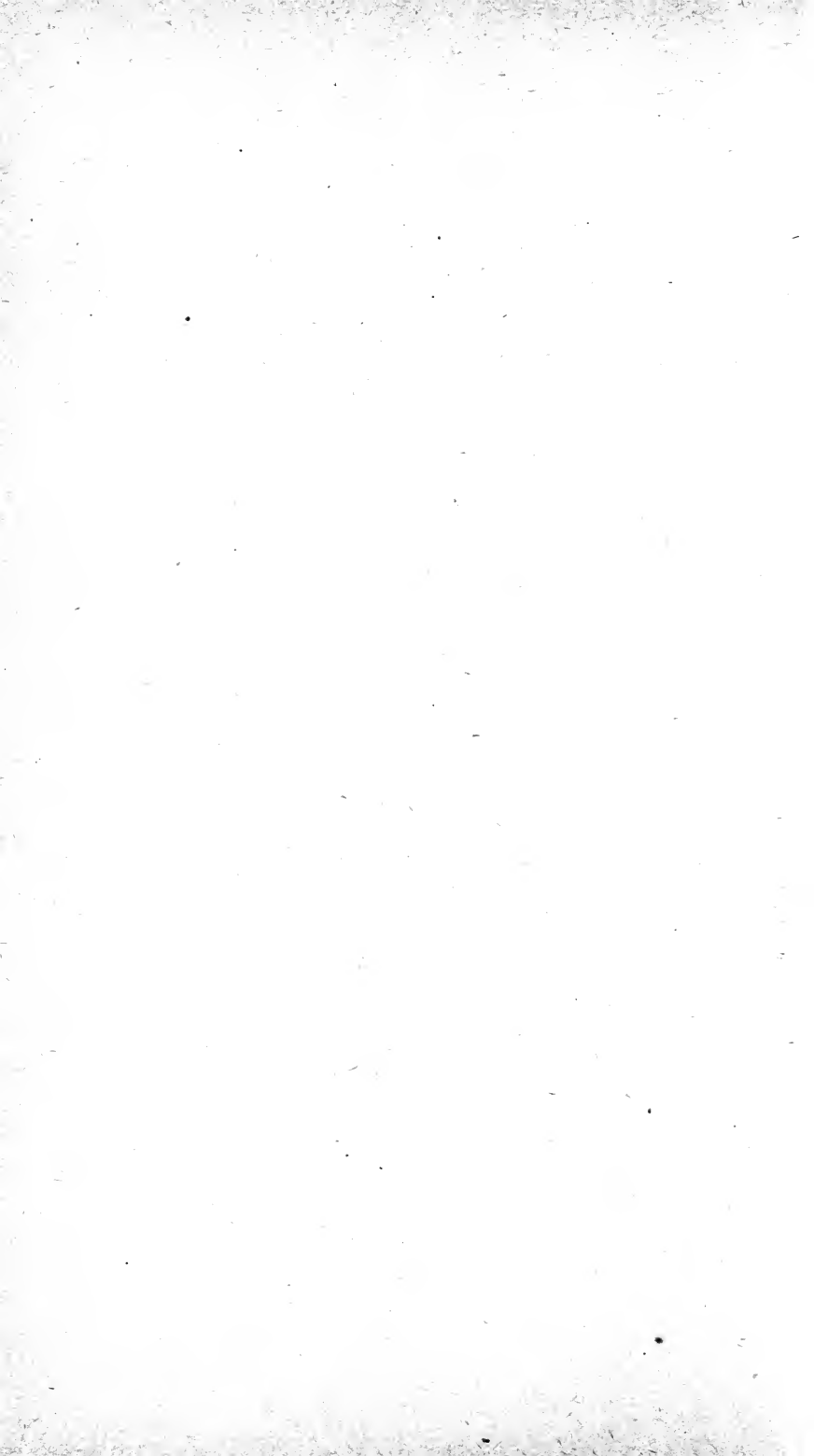
FORM OF CONTRACTOR'S BOND

to enter into a contract with the Contractor for the construction by the Contractor of an Addition to Shops at the Lenox Avenue and 148th Street Yard, in the Borough of Manhattan, in the City of New York, more particularly described in the said contract; and

WHEREAS, The City is about to enter into such contract with the Contractor upon the condition, and not otherwise, that this Bond shall be given to the City, and upon the faith thereof,

NOW, THEREFORE, the condition of the foregoing obligation is such that if the Contractor shall faithfully perform all the conditions, covenants and requirements specified and provided for in said contract, then this obligation shall be null and void, but else it shall remain in full force and virtue.

IT IS EXPRESSLY AGREED between the City and the Sureties (and it is only upon such agreement that the City accepts this Bond) that the Sureties will and do waive any and every notice of default on the part of the Contractor; that they will and do permit the City to extend the time of the Contractor to do any act; that no omission on the part of the City to give any notice of extension of time granted by or on behalf of the City shall be availed of by the Sureties or any of them as a defense upon this Bond; that the Sureties shall not set up or have any defense upon this Bond by reason of any alteration of the said contract unless such alteration shall be represented by a formal written instrument duly executed between the City and the Contractor which shall have been duly authorized by a vote of the Commission and entered into without the consent of the Sureties; and that in case of such alteration, however made, the same shall be a defense to the Sureties only to the extent of the actual injury or damage caused to the Sureties by said alteration.



**FORM OF
CONTRACTOR'S PROPOSAL**

For Construction of Addition to Shops at

LENOX AVENUE AND 148TH STREET YARD

(Under Contract No. 3)

CONTRACTOR'S PROPOSAL

FOR THE CONSTRUCTION OF ADDITION TO SHOPS
LENOX AVENUE AND 148TH STREET YARD
(UNDER CONTRACT No. 3)

NOTICE.—*There must remain annexed hereto:*

Copy of Invitation to Contractors
Copy of Information for Contractors
Copy of Form of Contract
Copy of Form of Bond

To the

PUBLIC SERVICE COMMISSION FOR THE FIRST DISTRICT:

1. The undersigned*

do hereby, in pursuance of the Invitation to Contractors and the Information for Contractors, copies of which are annexed hereto and made a part hereof, propose according to the terms thereof to enter into a contract in the form annexed hereto and made a part hereof, with The City of New York (hereinafter called the "City"), acting by the Public Service Commission for the First District (hereinafter called the "Commission"), for the construction of addition to Shops at Lenox Avenue and 148th Street Yard, and to furnish all necessary labor, materials, plant, power, tools, supplies and other means of construction and perform all the work mentioned in the said contract at the prices for the several items as given in the following Schedule of Unit Prices or as otherwise provided in the form of contract. It is understood that the quantities of various items specified in the following schedules are approximate only and are given as a basis for the uniform comparison of bids and are not in any way guaranteed or represented as correct or intended to be relied upon, and they shall not be taken as final and shall form no basis for any claim in case they do not correspond with the final measurements or quantities. It is further understood that the Commission reserves the right to increase or diminish or to omit entirely any of the quantities of items as therein stated.

* The bidder's name must be inserted here. If the bid be submitted by a corporation, the full legal title must be given here and a certified copy of the certificate of incorporation must be submitted, together with an affidavit showing the amount of stock paid in in cash and the names and addresses of the directors and principal officers. If the bidder be a foreign corporation, proof must also be submitted of its authority to transact business in the State of New York. In case the bidder has already filed such papers with the Commission in connection with another bid he may so state and may omit such papers in this instance. If the bid be submitted by a firm, the above blank must be filled in in the following form, "the firm of A. B. & Co., composed of A., B., C., D., etc." (giving the names of all the partners).

CONTRACTOR'S PROPOSAL

Item	Classification	Unit Price	Estimated Approximate Quantities	This column not to be used by Bidder Amount
1.....	For earth excavation above mean high water (except excavation for sewers, pipes, conduit and ducts), including the disposal of it, etc., per cubic yd.....		1,500	
1-N...	For removing buildings and clearing the site of the Shop, lump sum.....			
2.....	For earth excavation below mean high water (except excavation for sewers, pipes, conduits and ducts), including the disposal of it, etc., per cubic yd.....		300	
2-A...	For earth excavation, both above and below mean high water, for sewers, pipes, conduit and ducts, including the disposal of it, etc., per cubic yd.		300	
6.....	For concrete masonry, in place, as follows: (c) For 1:2½:5 concrete, per cubic yd.....		460	
9.....	For brick masonry, in place, per cubic yd..		550	
9-D...	For the removal of old masonry of whatever character, including the disposal of it, as specified in Section No. 269, per cubic yd..		380	
12....	For timber piles, in place and prepared, per lineal ft.		6,600	
13....	For timber foundations, placed and fastened, per thousand ft. B. M.....		2	
13-F..	For furnishing and placing yellow pine sleepers for pit rails, including the laying of rails, etc., as required by Section No. 86-A, per lineal ft. of rail.....		1,000	
15-C..	For waterproofing, coating of pitch without fabric, per square yd.....		500	
15-G..	For waterproofing, treated felt, laid with coal-tar pitch or asphalt, in place, as follows: (e) For 5-ply, per square yd.....		3,800	
19....	For riveted steel, painted and erected, per ton.....		300	

CONTRACTOR'S PROPOSAL

Item	Classification	Unit Price	Estimated Approximate Quantities	This column not to be used by Bidder Amount
19-B..	For re-erecting old steel, as specified in Section No. 269, per ton		18	
19-C..	For removing old steel, including the disposal of it, as specified in Section No. 269, per ton		28	
19-R..	For cutting and reframing the ends of existing trusses, as specified in Section No. 269, per end of truss reframed.		14	
20....	For steel beams and shapes, with or without connections, or other end details, painted and erected, per ton		50	
25....	For miscellaneous iron castings, such as manhole heads and covers, gratings, etc., in place, per ton		1	
27-D..	For wrought-iron pipe railing, in place, per lineal ft. of railing.		150	
42....	For cast-iron sewer pipe (straight pipe), in place in the work, per ton		16	
43....	For cast-iron sewer pipe (special castings), in place in the work, per ton		2	
76-EE	For removing and storing existing rails and ties and shifting existing tracks, as follows:			
	(a) For removing the existing tracks and storing the rails and ties, per lin. ft. of track		550	
	(b) For shifting existing tracks, per lin. ft. of track		460	
762-E.	For concrete and cinder work, in place, as follows:			
	(a) For 6-inch concrete floor, per sq. ft.		19,300	
	(b) For 1-inch cement floor finish, per sq. ft.		19,300	
	(c) For cement coping, per lin. ft.		370	
	(d) For 4-inch reinforced cinder concrete roof slab, per sq. ft.		22,000	

CONTRACTOR'S PROPOSAL

Item	Classification	Unit Price	Estimated Approximate Quantities	This column not to be used by Bidder Amount
	(e) For cinder concrete curbs for skylights, per cu. ft.....		3,500	
	(f) For cinder floor in blacksmith shop, per sq. yd.....		650	
	(g) For 1:3:6 cinder concrete for inspection pits, per cu. ft.....		12,900	
763-C	For copper flashing, complete in place, per sq. ft.....		80	
765-D	For galvanized iron gutters, in place, per lin. ft.....		350	
768...	For metal leaders, in place, as follows:			
	(a) For 3-inch galvanized iron leaders, per lin. ft.....		280	
	(g) For 5-inch wrought-iron leaders, per lin. ft.....		250	
	(h) For 6-inch wrought-iron leaders, per lin. ft.....		170	
795 ..	For electric conduit, in place, as follows:			
	(a) For three-fourths ($\frac{3}{4}$) in., per lin. ft...		550	
	(b) For one (1) in., per lin. ft.....		1,320	
	(d) For two (2) in., per lin. ft.....		500	
	(f) For three (3) in., per lin. ft.....		1,000	
796...	For cast-iron outlet boxes, in place, each...		100	
797...	For cast-iron pull boxes, in place, as follows:			
	(a) For 6-inch by 6-inch by 6-inch boxes, each.....		5	
	(j) For 36-in. by 18-in. by 6-inch boxes, each.....		1	
799...	For steel panelboard boxes, in place, as follows:			
	(i) For 29-in. by 6-in. by 45-in. boxes, each.....		2	

CONTRACTOR'S PROPOSAL

Item	Classification	Unit Price	Estimated Approximate Quantities	This column not to be used by Bidder Amount
820-A.	For steel sash windows, as follows:			
	(a) For new fixed steel sash windows, in place, including glazing, painting, etc., per sq. ft.		200	.....
	(b) For new steel sash ventilating monitor windows, in place, including approved operating devices, glazing, painting, etc., per sq. ft.		2,300	.....
	(c) For removing steel sash windows from south wall of existing shops and re-erecting them in south wall of Shop, lump sum. ....			.....
820-B.	For galvanized iron skylights, in place, including approved operating devices, glazing, painting, etc., as follows:			
	(a) For Type "A," per skylight.		24	.....
	(b) For Type "B," per skylight.		24	.....
	(c) For Type "C," per skylight.		12	.....
850-AA	For removing, resetting and installing doors, windows, stairs, rails, etc., as follows:			
	(a) For removing steel rolling lift doors from east wall of existing shops and re-erecting them in east wall of Shop, including painting, etc., lump sum. ....			.....
	(b) For removing existing iron stairs and landings and re-erecting them in another location, including painting (but not including new steelwork), etc., as required by Section No. 269, lump sum. ....			.....
	(c) For removing existing window at location of new bridge landing, and furnishing and installing new door, including all work due to connecting new bridge landing to existing wall, painting and all other incidental work, as required by Section No. 269, lump sum. ....			.....
	(d) For furnishing and installing 70-pound rail for crane runway, complete in place, per lin. ft. of rail.		420	.....

CONTRACTOR'S PROPOSAL

(2) If this Proposal is accepted and the proposed contract consented to by the Board of Estimate and Apportionment, the undersigned will within three (3) days after the delivery of notice attend at the office of the Commission, in person or by duly authorized representative, and will then and there deliver the contract with the City in the form aforesaid duly executed and with its execution duly proved; and the undersigned will at the same time deliver to the Comptroller of the City pursuant to the terms of the said contract *a bond in the sum of ten thousand dollars (\$10,000) in the form annexed hereto and made a part hereof with the following named sureties or, in the event that the following named sureties or any of them shall not be approved by the Commission, with such other securities as the Commission shall approve.**

It is understood that the acceptance of this Proposal by the Commission shall not be construed as an approval of the sureties or securities named in this Proposal, and in case the sureties or securities named in this Proposal are not approved by the Commission, the undersigned, within three (3) days after notice of disapproval or within such further period, if any, as may be prescribed by the Commission, shall substitute the names of other sureties or securities approved by the Commission.

(3) If the Commission shall notify the undersigned that this

* The bidder may, under the Rapid Transit Act, upon the approval of the Commission, deposit cash or securities in lieu of a bond; and the bidder, if desirous of so doing, shall so state here and shall strike out the words in italics and shall insert in the Schedule of Securities following the description of the securities proposed to be deposited. If securities are to be deposited, they shall be securities which are lawful for the investment of funds of savings banks within the State of New York and shall be approved by the Commission. If a bond is to be delivered, the names of the proposed sureties shall be inserted here.

CONTRACTOR'S PROPOSAL

Proposal is accepted and that the proposed contract is consented to by the Board of Estimate and Apportionment, then if the undersigned shall fail within three (3) days thereafter or within such further period, if any, as may be prescribed by the Commission to execute and deliver the contract or to execute and deliver the said bond or to make the said deposit in cash or securities, the undersigned may, at the option of the Commission, be deemed either to have made the contract or to have abandoned the contract.

And in the latter case the Commission may give notice thereof to the undersigned and may thereupon proceed to make another contract for the construction of addition to Shops at Lenox Avenue and 148th Street Yard with such, if any, of the original bidders as, in the opinion of the Commission, it will be to the best interests of the City to contract with or may by new advertisement invite further proposals, and the undersigned shall thereupon be liable to the City for all loss and damage sustained by the City by reason of such failure of the undersigned. Inasmuch as the amount of such loss and damage will be extremely difficult to ascertain, especially in view of the fact that said addition to Shops at Lenox Avenue and 148th Street Yard is necessary for the full operation of a railroad system, it is expressly understood and agreed that such loss and damage shall be liquidated and paid as follows: The undersigned shall pay to the City the expense of such new advertisement, if any, and in addition thereto the sum of three hundred dollars (\$300) for each and every day, except Sundays and legal holidays, that the City shall be delayed in entering into a contract for the construction of said addition to shops at Lenox Avenue and 148th Street Yard by reason of such failure of the undersigned and in addition thereto the excess, if any, of the amount of the bid, calculated from the prices contained in said bid and the quantities contained in this Proposal, which the City shall accept and upon which it shall enter into a contract for the construction of said addition to Shops at Lenox Avenue and 148th Street Yard over the amount of the bid, calculated from the quantities and prices contained in this Proposal, of the undersigned; which sums are hereby agreed upon not as a penalty but as liquidated damages which the City will suffer by reason of such failure of the undersigned. And the Invitation to Contractors and the Information for Contractors

CONTRACTOR'S PROPOSAL

and this Proposal shall constitute a contract binding the undersigned to pay to the City the loss and damage sustained by the City by reason of such failure of the undersigned, as aforesaid.

(4) At the time of delivering this Proposal to the Commission the undersigned will separately deliver a certified check payable to the order of the Comptroller of the City for the sum of five thousand dollars (\$5,000). And the undersigned hereby assigns to the City the said sum so specially deposited by the delivery of such certified check as security for the performance of the obligations of the undersigned under this Proposal. It is understood that such check is to be returned to the undersigned when the contract for the construction of said addition to shops at Lenox Avenue and 148th Street Yard is executed and its provisions in respect of the bond or deposit are complied with, unless all the proposals submitted in response to said Invitation to Contractors shall be rejected by the Commission, and in that case when such proposals are rejected, as provided in the Information for Contractors. In case the undersigned shall default in the performance of any of the obligations of the undersigned under this Proposal, the City shall have the right to apply the amount so specially deposited or so much thereof as may be necessary as a payment on account of the damages sustained by the City by reason of such default as aforesaid and shall return the balance, if any, to the undersigned. If the amount of such damages shall exceed the amount of said sum so specially deposited, the undersigned shall promptly upon demand from the Commission pay the amount of such excess to the City.

(5) A notice that this Proposal has been accepted and that the said contract has been consented to by the Board of Estimate and Apportionment addressed to the undersigned by the Commission as aforesaid shall forthwith, at the option of the Commission, operate as against the undersigned as a complete making of a contract according to the form thereof as aforesaid, with the blanks therein contained filled in according to this Proposal.

(6) The Commission may cause any notice intended for the undersigned to be delivered at Room No. _____ on the

floor of the building No. _____

in the Borough of _____

in the City of New York.

Such delivery shall be sufficient notice to the undersigned.

CONTRACTOR'S PROPOSAL

(7) There are no persons interested with the undersigned in this Proposal, except*

(8) This Proposal is made without any connection with any other person making a proposal or bid for the same purpose and is in all respects fair and without collusion or fraud. No member of the Board of Aldermen, head of department, chief of bureau, deputy thereof or clerk therein or other officer of the City or any member or employee of the Commission is interested directly or indirectly, as contracting party, partner, stockholder or otherwise, in or in the performance of the contract or in the supplies, work or business to which it relates or in any portion of the profits thereof.

Dated†

, 1918

* Here insert the names and addresses of all persons interested with the bidder. If there are no such persons, strike out the word "except."

† The bidder must sign his proposal on this page.

CONTRACTOR'S PROPOSAL

SCHEDULE OF SECURITIES

(NOTE.—If the bidder desires not to give a bond, but to deposit securities in lieu thereof, a description of the securities to be deposited for that purpose must be inserted below.

All securities when delivered must be payable to, or run in favor of, or be transferred to, the Comptroller of The City of New York.)

CONTRACTOR'S PROPOSAL

Affidavit of Verification

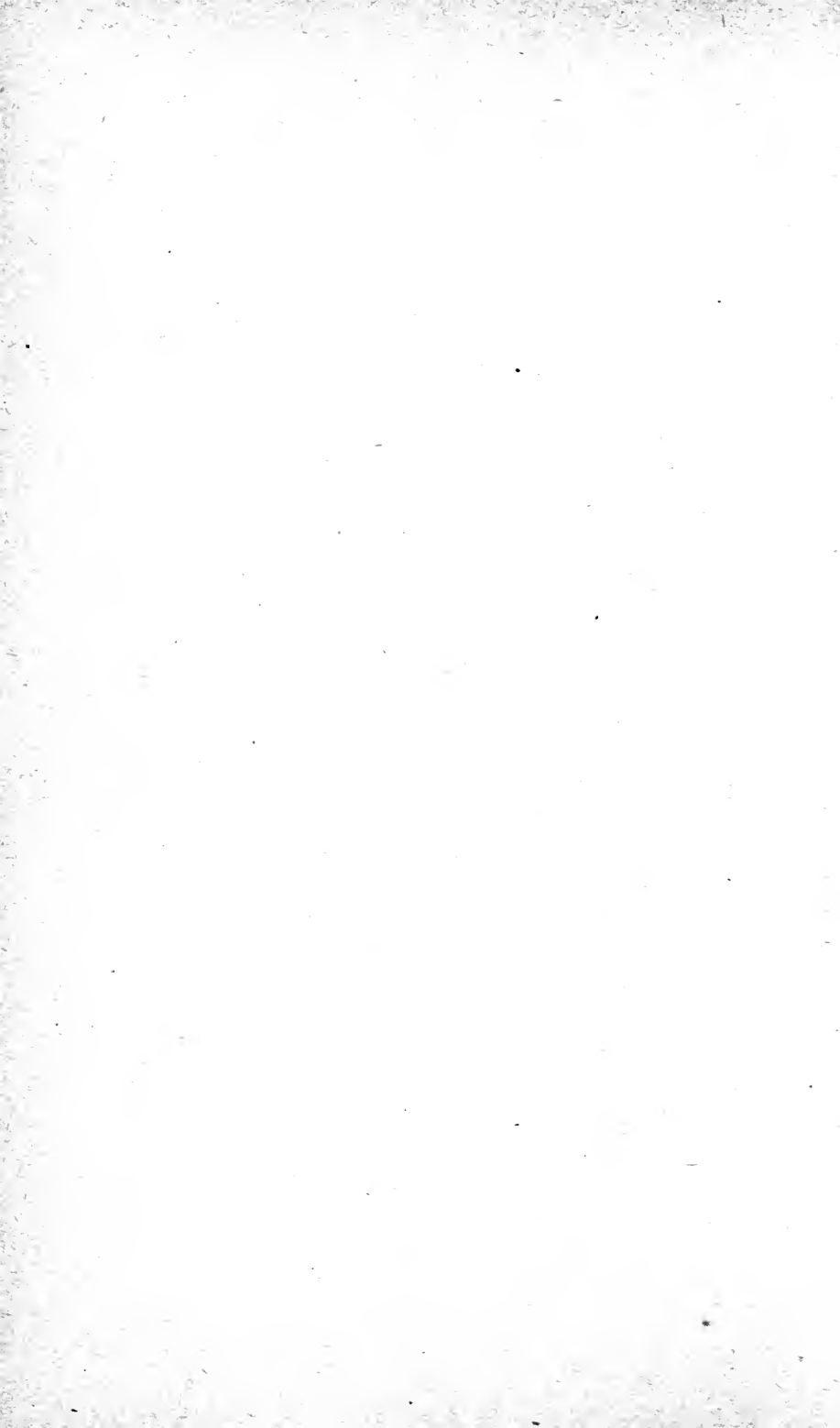
STATE OF NEW YORK, }
City and County of New York, } ss.:

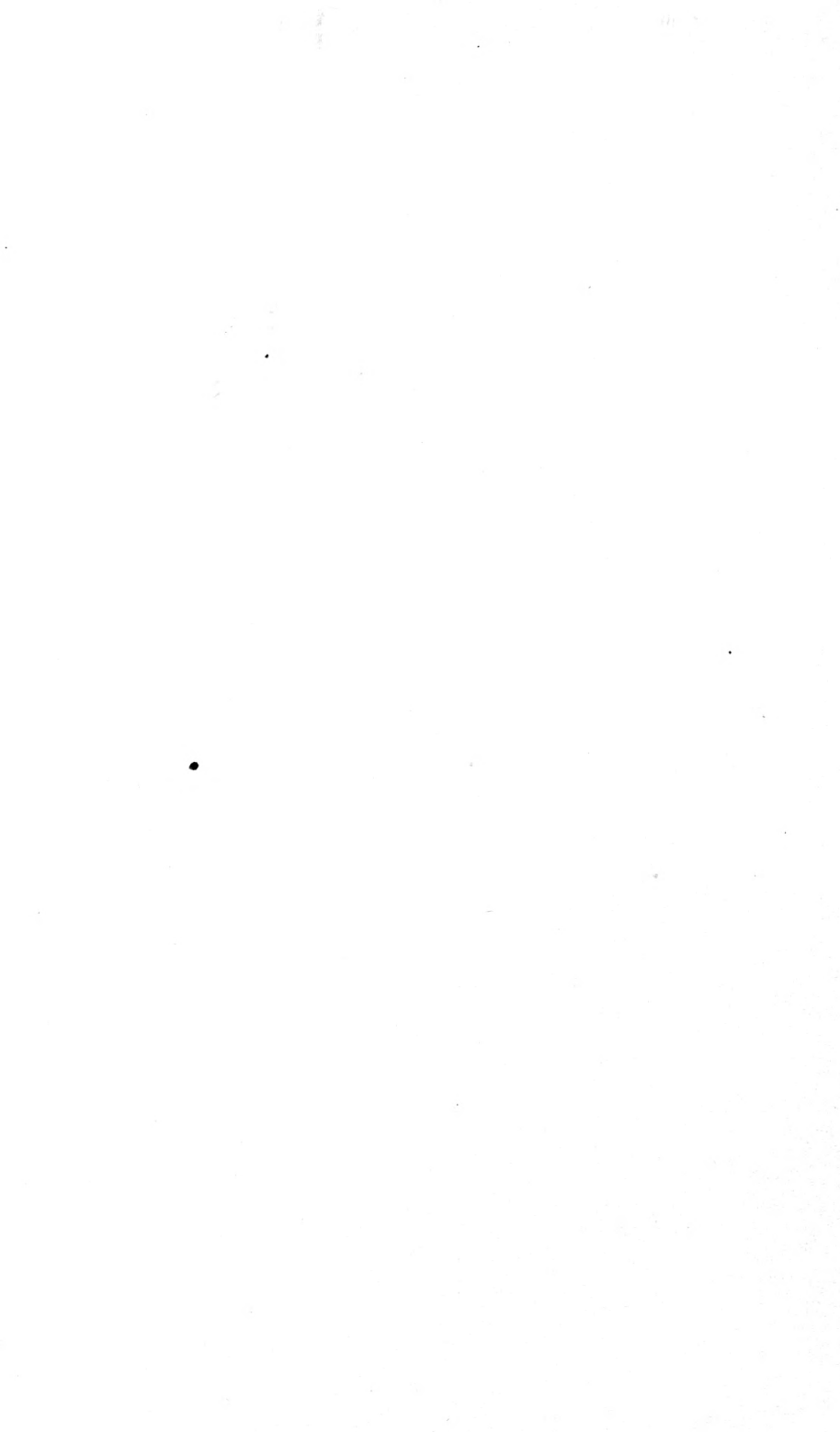
being duly

sworn, says: I am*
the proposing Contractor above named. I have read the fore-
going proposal. The same is in all respects true.

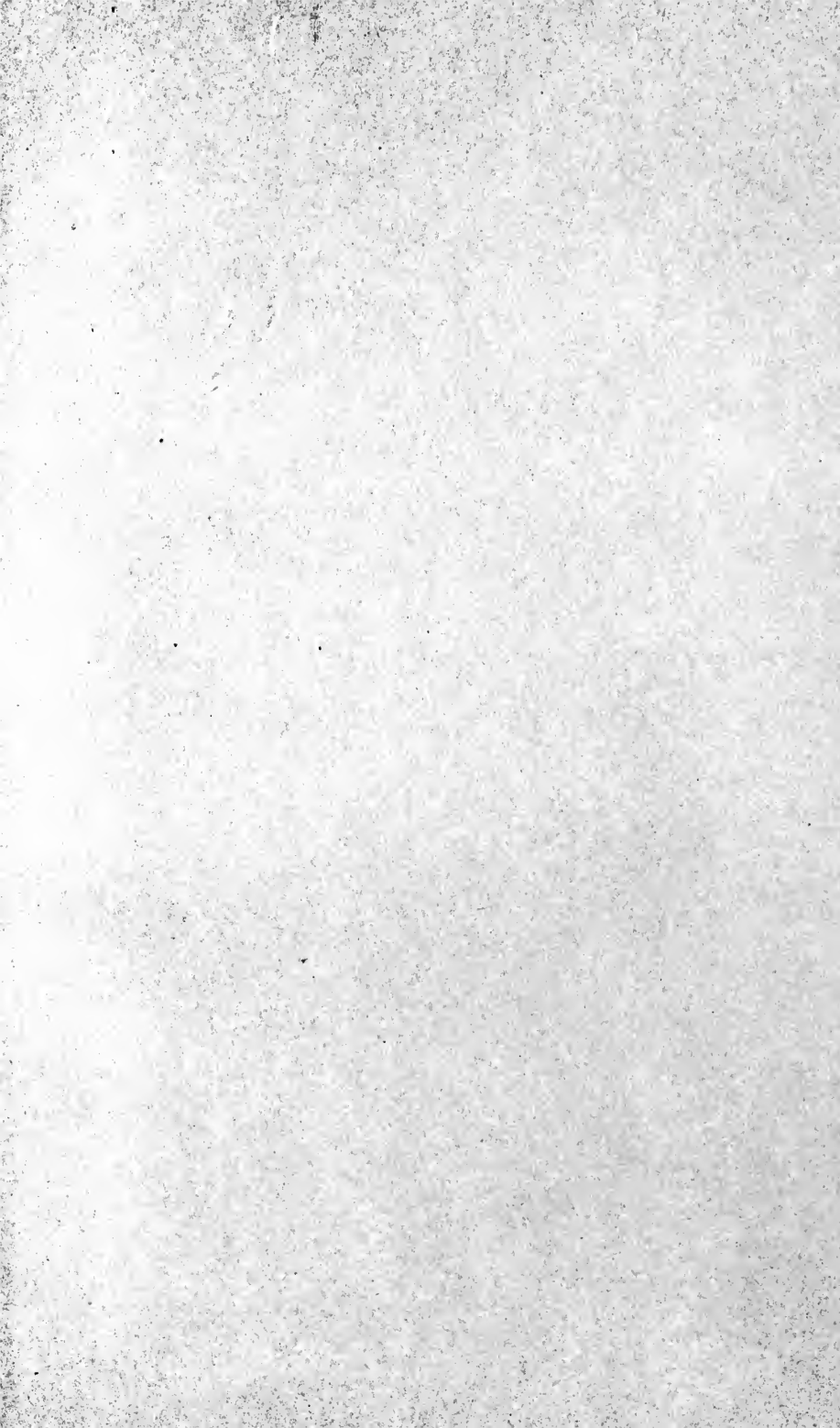
Sworn to before me this }
day of , 1918. }

* If the bidder be an individual, do not fill this blank; if the bidder be a firm, here say, "a member of the firm of _____," if a corporation, say "the (President or other officer duly authorized) _____ Company."









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